Department of General Services
Building and Property Management Branch

California Best Practices Manual

Better Building Management for a Better Tomorrow

California Department of Education Building (049)
1430 N Street, Sacramento, CA 95814

December 12, 2006

Preface

Produced by the California Department of General Services' Green Team.

The guidelines and policies in this manual are designed to be used by building management personnel at the Department of Education, 1430 N Street, Sacramento, CA 95814. It is being made available to the public as an example of a policy manual that meets the criteria of several LEED-EB credits requiring management policies.

This manual utilizes the *Integrated Pest Management Kit for Building Managers*, which was developed and made available by the Massachusetts Department of Food and Agriculture (www.massdfa.gov).

This publication can be downloaded from the Green California web site at:

www.green.ca.gov

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1 Introduction

Mission statement

The mission of the Building and Property Management Branch (BPM) is to:

- Provide a safe and healthy work environment for its tenants and the public through the use of a routine, systematic preventive maintenance program.
- Protect the State's investment in its real estate properties.
- Provide effective building management services at a proven standard recognized within the industry, with an equal or greater efficiency and economy than agencies can provide for themselves or than can be obtained from the private sector.

Performance of the above mission statement goals is accomplished with a commitment to environmentally-sound practices.

The above mission statement was developed to meet today's real estate market standards and to ensure the level of team expertise necessary to deliver professional quality services on a daily basis.

Building information

This Introduction contains basic information about the following building:

Building Name and Location	
Name	Department of Education
Address	1430 N Street, Sacramento, CA.
Square footage	502,000 sq ft
Rentable square Footage	379,000 sq ft (including office, storage, retail, and common areas)
Internal BPM building number	049
Amenities	• 24 site-specific art projects • auditorium and conference center • child-care center • coffee bar • retail and employee parking

The basic information in this introduction addresses, but may not completely meet, all prerequisites for LEED-EB certification.

Chapter contents

The table below lists sections included in this chapter.

1.1 History of Building

Building History	
Construction completion date	July, 2002
LEED-NC certification date	January, 8, 2003
LEED-NC certification	Gold
LEED-NC application number	0090

1.2 NPDES Permit Compliance

This facility is not regulated by the United States Environmental Protection Agency's National Pollutant Discharge Elimination System (EPA NPDES) Clean Water Act requirements.

1.3 Fixture Potable Water Baseline

The building's fixture water is not metered. The annual fixture water usage was derived using the annual gallon usage from city utility water bills, minus metered cooling tower and irrigation usage.

Water Baseline Information	
Total case annual volume (gal)	2,870,823
Total actual fixture water use annual volume (gal)	2,813,126

1.4 Retro-commissioning Schedule

The Department of General Services (DGS) has instated a retro-commissioning (RCx) program within the Professional Services Branch's Special Programs Section.

The Special Programs Section has developed a retro-commissioning plan and has compiled a list of buildings that are over 50,000 square feet which meet the criteria stated in the Governor's Executive Order S-20-04.

See the table below for the estimated RCx start date.

Retro-commissioning Information	
Estimated RCx start date	2009

1.5 Energy Star Rating Baseline

Twelve months of utility bills (including those of the LEED-EB performance period) were obtained and entered into the EPA Energy Star benchmarking tool.

Energy Star Information	
Billing Period	February 2005 – February 2006
Energy Star Rating	95

1.6 Compliance with ASHRAE 55 – 2004

Introduction

There are two methods that can be used to comply with ASHRAE 55-2004:

- Conduct an occupant survey that addresses thermal comfort.
- Provide trend data on the hottest and coldest days of the past year and ensure that the interior temperatures meet ASHRAE 55 requirements.

Compliance methodology used for this building

Trend data was gathered from The Old Farmer's Almanac website for Sacramento's high temperatures for the period February 1, 2005 through January 31, 2006 and the trend data for those corresponding days of July 15, 2005 and December 14, 2005.

The building provides a very high level of controllability. Occupants have control of their thermal comfort through the use of floor diffusers. The high level of controllability in the building ensures compliance with ASHRAE 55-2004.

2 Custodial Plan

Introduction

The following guidelines and policies will ensure BPM provides the highest custodial service possible using in-house personnel.

Total commitment to the guidelines and policies in this chapter is required by the Building Manager, Custodial Supervisors and Custodians in order to meet our service goals.

The cooperation of all Managers and staff also is essential to the success of BPM's custodial efforts.

Custodial plan

The cleaning schedules and routines in this manual are designed for the floor plans of the building, and:

- indicate which tasks are to be completed daily, weekly, or at other scheduled intervals
- provide estimates of the total time to complete a scheduled task or routine
- are organized by the number of workstations and individual tasks
- ensure any floor can be cleaned without interruption caused by employee absences
- can be used to train newly hired or substitute custodians

Chapter contents

The table below lists sections included in this chapter.

2.1 General Staffing

Hiring practices

BPM's commitment to sustainable practices is reflected in hiring practices for all custodial employees.

All vacant positions, whether promotional or new, are defined in the Department of General Service's Duty Statements and Job Opportunity Bulletins. The bulletins clearly state that persons interested in vacant positions must understand and agree to apply sustainable work practices.

All custodial employees must strive to maintain environmentally safe buildings.

Positions

Staff positions for the building are listed below:

Number of Positions	Position Title	Description of Duties
1	Building Manager III	Manages the custodian program.
1	Custodian Supervisor III	Supervises all four CS IIs for the East End Complex
1	Custodian Supervisor II	Supervises 18 Custodians
18	Custodians: • 2 day shift • 2 swing shift • 16 night shift	Perform custodial tasks in three shifts: • day shift (7am-3:30pm with supervision by CS III) • swing shift (3pm-11:30pm) • night shift (5pm-1:30am)

2.2 Special Cleaning Requirements

Special cleaning requirements are listed below.

Location	Special Requirements
Lobby	Granite in main lobby Elevator doors Stainless steel
Director's and Superintendent's Offices and Restroom/Shower	Executive Cleaning
Personnel Division 1st floor	Daytime access only
Room 1205	Daytime access only
Central Security Room	Daytime access only
Floor Cleaning	Carpet – tiles Stratica – 1st floor Computer Room – 3rd floor Ceramic Tile Granite
Recycling	Cans, plastic, paper, cardboard bailing
Garage and dock area	Exterior cleaning
Retail	See individual lease agreements
Child-care	See lease agreement

2.3 Active Management Program

Introduction

Cleaning supervision and management requires active personal involvement, visibility and availability.

An active management program addresses the following needs:
- communication
- attendance
- problem identification
- development and implementation of solutions

Communi-cation

All custodial and maintenance staff, which includes managers, supervisors, and crews, must communicate frequently and regularly in order to address and resolve any issues that may arise.

Structured, regularly-scheduled meetings are a preferred method for conveying information. In addition to meetings, staff should be available to confer as often as necessary.

Emergency response plans must be clearly communicated to custodial and maintenance staff so they can react in an appropriate and timely manner.

Attendance

Daily attendance is impacted by the abundant benefits available to State employees, such as vacations, sick leave or governmental protections such as worker's compensation, FMLA, etc.

Use of these benefits can create a frequently changing work condition. The interaction between the Custodians and each layer of supervisors and managers is critical to meeting the building workload. Management should encourage good work performance and good attendance

Problem identification

Problems must be identified as early as possible. Early identification is essential in determining if slight adjustments to a new or evolving condition can be made.

Some conditions will be only circumstantial, or temporary. Others may require a permanent change after careful team consideration of the correct response. Problems that go unnoticed for a long period of time may require much larger actions to resolve than if they were identified early.

The entire staff must be committed to helping any individual member at any time to match a pace necessary to meet objectives or resolve a problem.

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2.3 Active Management Program, Continued

Program elements

The BPM Active Management Program is comprised of:
- Managerial and Custodial Supervisor work plans
- Site inspections
- Maximo tickets
- Vending machine management

2.3.1 Work Plans and Managerial Responsibilities

Creating work plans

Work plans describe the duties and responsibilities of managers and supervisors.

Building Managers and the Regional Manager are responsible for developing work plans. These work plans follow guidelines and standards that comply with:
- Department of General Services policies
- State and Federal rules and regulations
- Sierra Environmental Cleaning Systems™ recommendations.

Custodial supervisors assist managers by offering expert advice and recommendations. Custodial supervisors are best able to identify the actual work load and to match staff resources with the work load. Custodial supervisors also help lay out the job cards specifying tasks that roll up into the plan.

Meetings

Managers and supervisors must meet daily.

Daily meetings will provide a forum for:
- assessing the work plan's progress
- defining areas needing attention or improvement
- determining goals and objectives
- reviewing accountability measures

At each meeting, the previous day's written report summaries must be reviewed. Immediate attention must be given to any areas that may indicate nonstandard incidences.

Monthly reports must be generated to summarize activities and provide a method for historical comparative review.

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2.3.1 Work Plans and Managerial Responsibilities, Continued

Implementing work plans

Both the Custodian Supervisor III and Custodian Supervisor II are responsible for implementing the Sierra Environmental Cleaning Systems work plan by directly supervising specialists' work.

For a description of supervisory duties, see Positions on page 2-2-2.

2.3.2 Custodian Supervisor III Work Plan

Introduction

The Custodian Supervisor III (CS III) assists in developing the technical aspects of the Sierra Environmental Cleaning Systems work plan.

The CS III also:
- is accountable to the Building Manager for the direct success of the Sierra Environmental Cleaning Systems work plan
- implements the Sierra Environmental Cleaning Systems work plan by supervising all hands-on training and overseeing the CS II's application of facility management policies

Responsibility as technical expert

The CS III is the technical expert.

It is the CS III's responsibility to:
- apply custodial experience when supervising the systems cleaning work plan
- investigate and understand current personnel policies to ensure the safety, health, effectiveness and efficiency of the entire team
- recommend improvements or adjustments to the BPM systems cleaning program
- recommend new technologies

Responsibility as supervisor

The CS III implements the Sierra Environmental Cleaning Systems program by supervising:
- hands-on training
- application of the systems cleaning work plan by the Custodial Supervisor II (CS II)

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2.3.2 Custodian Supervisor III Work Plan, Continued

Responsibility as supervisor, continued

The proper application of the Sierra Environmental Cleaning Systems work plan is ensured by:

- regularly inspecting the floors
- interacting with and coaching staff
- ensuring work processes are maintained and program objectives are met
- documenting, responding to, and following up on complaints

Communication with managers

The CS III must meet daily with the manager and inform the manager of any problems or concerns and how they're being dealt with, team progress or need for adjustments, tenant relations, etc.

Communication with supervisors

The CS III must be informed and in control of the custodial operations at all times.

The CS III meets frequently with the CS IIs to:

- maintain a support system
- increase familiarity with the nightly activities and progress of the staff

While the CS II closely monitors staff productivity, quality or behavior slippage, the CS III watches for results and determines if workload adjustments are needed.

The CS III assists the CS II as needed in counseling or advice in disciplinary matters.

Reports

Daily and Monthly Reports are compiled by the CS III and submitted to the Building Manager.

See Appendix A for Daily and Monthly Report samples.

The CS III directs the document preparation and assists the CS II to ensure justifications and supporting records are complete.

The CS III submits a complete package to the Building Manager for review and final submittal.

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2.3.2 Custodian Supervisor III Work Plan, Continued

Daily schedule

The CS III is responsible for ensuring quality of workmanship and overall adherence to the BPM systems cleaning plan for the building.

The CS III must plan each day to include all the different areas and issues that require time and attention. The following is an outline of the different responsibilities the CS III must plan into the daily schedule:

1. Review all CSII Daily Reports to discuss custodian activities.
2. Meet with Building Manager to discuss any information the Building Manager may have concerning the building.
3. Coordinate CS II work loads and make sure all reports are accurate and timely.
4. Attend staff meetings.
5. Develop and submit monthly reports to Building Manager by the 4th business day of each month.
6. Conduct scheduled monthly safety meetings with all shift staff meeting IIPP reporting requirements. Submit sign-in sheets and necessary paperwork to office staff and ESHOP for record keeping.

2.3.3 Custodian Supervisor II Work Plan

Introduction

The Custodian Supervisor II (CS II) role is the most critical to the daily accomplishments and benefits of the BPM systems cleaning program.

Responsibility as supervisor

The CS II must closely interact with the specialists at each shift by integrating their roles as coach to guide them in the team effort.

Throughout the balance of the work shift, the supervisor spends half of their time working amongst the specialist team by appearing on the work floors at unannounced times and at various stages of their progression throughout each floor.

It is important to talk with the specialists, comment on their work process and quality to encourage and energize the group.

Talking to each individual specialist and walking their assigned areas are the two most important jobs of the Supervisor II.

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2.3.3 Custodian Supervisor II Work Plan, Continued

Responsibility as supervisor, continued

Any deviance on the Daily Report must be entered and highlighted to facilitate manager/supervisor review. Any indication of specialist's actions or behaviors, either individually or in combination, must be addressed or corrected immediately to maintain the balance of harmony and energy necessary to accomplish the work in the allotted time.

Quality assurance

Contemporaneously, the CS II is responsible for the quality of workmanship.

It is essential to be aware of details indicating change in the routine, change in attitude or change in morale by understanding the skills and characteristics of each individual as well as how the personalities blend.

Daily schedule

The CS II's must develop a schedule that enables him/her to provide adequate, on-site supervision of the staff in the buildings during work shifts.

The schedule must include continuous supervision of the crew for the entire shift. The CS II must be on site at the conclusion of the work shift to ensure proper clock out procedures are followed. See Time Keeping Policy in Appendix A.

Following is a list of tasks that must be performed by CS IIs:

Task	Task Details
Develop schedules	• Follow written descriptions of work to be done; frequencies tasks are to be done, methods used for tasks to be completed nightly, weekly, monthly, semi-annually and annually. • A schedule of non-routine cleaning or special project work should be made at least one week in advance. • Any extra tenant services should be scheduled when agreed upon. The completion date given to the tenant should be met. • Hold regularly scheduled Team Meetings with CS IIs.
Make adjustments to schedules for:	• Absenteeism • Immediate problems that require attention

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2.3.3 Custodian Supervisor II Work Plan, Continued

Task	Task Details
Perform administrative review of:	• Employee Records • Time cards and attendance records • Supply inventory • Equipment preventive maintenance • Maximo tickets (creating and closing) • Daily Report • Route/Zone Appraisals • Restroom Appraisals • Daily Route Timing Charts • Monthly Reports
Perform physical tours of the building	1. Check to see that employees are situated and working. 2. Give assistance in training the new hires. 3. Check progress and quality of project work. 4. Get to know the staff. 5. Vary your schedule. Do not tour the same time every day. 6. Vary your route. Do not walk the same route the same way every day.
Inspect all work areas	• All areas must be routinely inspected so that the entire building is inspected every other week. • Document the results of the inspection using the General Inspection forms to document either corrective or special work that is found when on a floor. • Issue Maximo tickets for each floor's General Inspection. Items may be batched into one Maximo ticket. The Maximo ticket is issued to the janitor for the work they are to perform at least by the next business shift. When the work is completed, the custodian writes on the ticket what they did to complete the work, initials and turns the Maximo ticket back into the issuing supervisor for a follow-up inspection prior to entering the ticket report into Maximo.
Explain inspections to the employees	• Have employees sign the inspection report stating that it was explained and that they understand the prescribed amount of time to make corrections. • Show them the proper techniques if necessary.

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2.3.3 Custodian Supervisor II Work Plan, Continued

Task	Task Details
Follow up on:	• Corrections and their due dates – don't be late. • Project work quality and quantity. • Tenant satisfaction with special work requests.
Requisition necessary materials and supplies	• Use the appropriate forms and format. • Custodial supervisors are to ensure that green products are purchased and meet LEED-EB sustainable cleaning products requirements.
Meet with vendor representatives	• Set a definite time limit when making appointments.
Attend staff meetings	• As necessary.

2.3.4 Site Inspections

Introduction

Site inspections are performed by the CS II and must be scheduled so that the entire building is inspected every other week.

When inspecting, be critical. Being easy on inspections will only lead to a false sense of quality and poor customer satisfaction.

Appraisal forms

Use the Route/Zone Appraisal forms to perform nightly walks.

See Appendix A for a sample Route/Zone Appraisal form.

Document all corrective or special work necessary to resolve problems found when on each floor.

Frequency

Site inspections are to be performed by the CS II on a nightly basis.

Completion of site inspections of the entire building must be accomplished on a bi-weekly basis, following up every other week.

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2.3.4 Site Inspections, Continued

Frequency, continued

See Appendix A for a sample inspection schedule.

See Appendix A for a sample inspection report.

Common-use conference and training rooms, auditoriums, lobbies, mail/copy rooms, and dock areas can be inspected on a random basis. For random inspections, use the Route/Zone Appraisal forms.

Duty check-off sheets

Each custodian should use the Custodial Duty Check-Off Sheet. Enter comments on the sheet in order to keep the supervisor informed of unusual conditions you find or of any work that is noted for daytime corrections.

See Appendix A for a sample.

When using the Custodial Duty Check-off Sheet:

- The Custodian must sign and date the form before turning it in to the supervisor at the end of each applicable shift.
- The supervisor creates a Maximo work ticket that is then routed to the appropriate group for correction – engineering/trades or day custodians.
- Use the Duty Check Off Sheet to reference the work order and attach it to the supervisor's daily report. Follow up within a reasonable time to ensure the work has been accomplished to ensure completion.

2.3.5 Maximo Tickets

Introduction

Maximo is a computer system that is used as a management tool for facilities. Maximo helps managers perform:

- Workload management
- Cost assessment
- Preventative maintenance
- Inventory control

Although Maximo is used by each of the BPM facilities, it is not used to monitor all facilities or coordinate operations between facilities. Each installation of Maximo is locally administered by BPM's separate management groups and tracks the operations within a particular facility only.

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2.3.5 Maximo Tickets, Continued

Introduction, continued

Note: The following sections discuss custodial staff interaction with Maximo, but are not a comprehensive guide for using Maximo. For more information about Maximo, see the Maximo home page on the DGSNet (http://maximo.dgs.ca.gov/default.htm).

Issuing tickets

Maximo tickets must be issued for each floor's General Inspection form.

Maximo tickets are to be issued for spills, recycling, or anything over and above the regularly scheduled assignment. These types of tickets are to be charged to the applicable building.

Items may be batched into one Maximo ticket. The Maximo ticket is issued to the custodian with the following lead times:

- One workday for daily items
- Two workdays for weekly items
- Seven workdays for monthly items
- Fifteen workdays for quarterly, semi-annual and annual items

Please see Tenant work orders on page 2-14 and Reporting needed repairs on page 2-14 sections for more information regarding Maximo tickets.

Closing tickets

When the work is completed, the custodian initials the Maximo ticket and returns it to the issuing supervisor.

The supervisor performs a follow-up inspection to ensure corrections have been made prior to entering the ticket report into Maximo.

If the deficiencies have not been corrected, corrective action may result.

Reviewing tickets

The CS III and the Building Manager review the Maximo tickets.

If a particular floor is repeatedly showing poor dusting for example, this could be for one of three reasons: the custodian doesn't know how to perform the task, the frequencies are not being met, or the custodian doesn't like to do it so only does enough to get by. In any event, the CS II is now aware of the problem and can follow-up appropriately.

2.3.5 Maximo Tickets, Continued

Tenant work orders

A tenant may request custodial services that are not part of the routine cleaning as provided for in the rental rate. These services can be provided for an additional charge. These services are to be billed by charging labor to a Tenant Services Work Order.

The CS enters the time to be billed to the tenant via a Maximo work ticket and charges the time to the appropriate agency work order in PAL.

If it is a minor, one-time request, the CS, with the Building Manager's approval, may wish to waive the charge as a means of improving tenant-management relationships.

Building Name	Building #	Tenant Work Order #
Department of Education	049	CDE – 049.113643.TS

Reporting needed repairs

While performing the nightly routine of cleaning the building, custodians are the only members of the building staff exposed to every square foot of the common and tenant areas of the building.

The maintenance staff has assigned areas to inspect and make repairs but, due to their limited number, it is extremely difficult for staff to identify all problem areas.

For these reasons, it is important that custodians report to their Supervisor anything that requires maintenance repair. This includes lights, ceiling tiles, blinds, restroom fixtures, floor tiles, etc.

Report needed repairs using either of the following methods:

- Keep small paper note pads, record the problem, and give notes to the CS at the end of shift unless it's an urgent matter.
- During regular inspections, note needed repairs on the inspection checklist.

The CS will enter the information in Maximo, leaving it in "Waiting Approval" status for the Supervisor of Building Trades and/or Chief Engineer to retrieve and assign to their appropriate staff.

2.3.6 Vending Machine Management Procedures

Introduction

The frequency with which the machines are checked will vary according to the building and its tenant makeup.

In general, machines should be checked weekly. They may be checked more frequently, as per tenant request.

Vending machine monies should be collected and deposited on the last day of each month.

Records of deposit to should be submitted to Accounting and office records should be maintained in accordance with the Department of General Services Deposit Procedures Manual.

Procedure

Use the following for procedure for checking machines and collecting money.

Money collection should be performed by the CSII and one other employee.

Task	Task Details
1. Collect money	• Obtain the Inventory of Feminine Product Sheet from the Office Technician. • Proceed to each vending machine on each floor the last day of the month to gather monies from each vending machine. • Use an Inventory of Feminine Product Sheet that is signed by two collectors to indicate how much money was collected on each floor as well as how many items were restocked. • Place monies in a money bag. • Transport the money to the office.
2. Replace product and conduct inventory	• Replace product. • Enter the count on the Inventory Form. • Verify that the product and coin amounts net zero.
3. Count money	• Return to the office with money bag. • Roll all coins to verify coin count is correct on Inventory Form.

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2.3.6 Vending Machine Management Procedures, Continued

Task	Task Details
4. Fill out deposit slip	• Obtain blank copies of the Report of Deposit Slip, Report of Collection Form (GS80) and Deposit Control Notice (GS-82). • Direct the Office Technician to fill out the deposit slip, then sign, date and place the deposit slip and rolled money in bank deposit bag. • Print the adding machine tape for in-office records. • Obtain signatures from the Building Manager. • Make copies of reports and file reports and adding machine tape and place in folders that will be stored in Headquarters Filing Center.
5. Deposit money	• Assign a person as designated depositor. • Deposit money. • Provide duplicates of deposit slips and deposit receipt to the Office Technician, who will then make a copy of the **QUINT** slip as well as the deposit receipt. • Staple the **QUINT** (original) and deposit receipt copy to the month's in-office file of Report of Collection and Inventory Form.
6. Prepare the Report of Collection	• Attach the remaining receipt copies and deposit slip to the Report of Collection. • Deliver the Report of Collection to the DGS SRF Cashier's Office. • Complete the Deposit Control Notice (GS-82) and staple it on top of all paperwork. • File copies in the Month's Report of Deposit slip and Report of Collection. • **NOTE:** Record any voided Reports of Deposit on the Deposit Control Notice. Also staple the voided Reports of Deposit to the Deposit Control notice. The QUINT copy of any voided Report of Deposit must be stapled to the in-office copy of the Deposit Control Notice.

2.4 Sierra Environmental Cleaning Systems™ Method

Introduction

The Sierra Environmental Cleaning Systems™ method of cleaning buildings is based on specialization. Each member of a cleaning team executes specialized tasks that are designed and engineered for the building they are cleaning.

Using the Sierra Environmental Cleaning Systems method, employees move from floor to floor as the building is cleaned. Each team member has a specialty, for example:

- trash and dusting
- vacuuming
- restrooms
- utility
- floor work

Working as a team, employees are able to master their specialty, clean more efficiently, and monitor each others' work. The entire team becomes responsible for the full scope of janitorial maintenance.

Benefits

The DGS has established a comprehensive, environmentally acceptable cleaning method specifically designed and engineered for specific buildings.

The Sierra Environmental Cleaning Systems method of cleaning:

- saves energy
- reduces travel work distances for employees (thus refocusing human energy output towards efficient cleaning)
- removes environmental contaminants
- reduces chemical usage

The Sierra Environmental Cleaning Systems method of cleaning saves energy in three ways:

1. It does not require as much equipment as other cleaning methods.
2. The lights in an area are on only as long as the time it takes the team to clean the floor and move on to the next.
3. The heating and ventilation system is turned off after custodial staff has completed their work and moved to another floor.

The Sierra Environmental Cleaning Systems method of cleaning is also engineered for efficiency, taking into consideration the type of office layouts utilized in the EEC and open space planning with office cubicles.

2.4 Sierra Environmental Cleaning Systems™, Continued

Analyzing cleaning requirements

Building floor plans are analyzed and the cleaning team work flow is engineered to control the efficient movement of the team.

To analyze a building, you must consider the building's:
- unique footprint configuration
- tenant needs
- finishes
- tenant density

You must also consider the cleaning team's:
- potential absenteeism
- equipment requirements
- use of chemicals

Planning the cleaning schedule

The building floor plan is used to develop cleaning schedules and routines.

The number of specialist positions needed is determined by the unique requirements of each building.

The total time is broken down by workstations and the individual tasks required by the cleaning schedule.

The cleaning schedule indicates what is to be completed daily, weekly, and at other scheduled intervals. It can also be used to train newly hired or substitute custodians.

Any floor can be cleaned without interruption caused by any absences.

Cleaning procedure

Each team of specialists begins on the top floor of the building and works their way down, floor by floor.

If one team member completes their routine before their team member, they work towards that member to assist them until the entire floor is completed. The team then moves to the next floor together.

One radio is carried by each team of specialists. They report to their supervisor when they have completed a floor and are moving on to the next.

The supervisor then records this information on the Route Timing Chart. (See Appendix A).

2.4.1 Cleaning Systems Rules

Rule 1 **Limit separation of team members.**

Team members should never be separated for more than 25 minutes.

If staff are separated and allowed to be alone too long, they might become unproductive. Resentment towards system cleaning may result because one member may be doing more work than another.

Rule 2 **Do not mix cleaning methods.**

Mixing system cleaning and zone cleaning methods decreases the volume approach and lessens the efficiency and effectiveness of system cleaning. It can also reduce effectiveness by making some staff more fatigued earlier in the shift than others, which can again result in resentment.

Rule 3 **Always follow the established path.**

Following established paths makes it easier for the supervisor to know where staff should be and how to plan for unscheduled absences.

Deviating from the established path will break the team's rhythm – specialists may not be where team members expect them to be. It can also break the specialist's knowledge routine, making it easier to forget something (e.g. tools, outlet locations, break room, certain cubicles, etc.).

Rule 4 **Do not allow faster specialists to abandon their co-workers.**

Starting points are always the same, but stopping points will change depending on many variables (e.g. less or more trash due to a potluck, spill requiring a little more vacuuming, etc.).

Rule 5 **Always move from floor to floor together.**

The supervisor can expect where the team will be at specific times. Team members can help each other out if necessary. Moving together maintains a rhythm and minimizes the energy and time expended to accomplish tasks.

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2.4.1 Cleaning Systems Rules, Continued

Rule 6 **Never allow negative behavior to go unchallenged.**

Maintain team spirit. If specialists are allowed to behave negatively, team morale will be impacted.

Rule 7 **Do not change specialties more frequently than 90-120 days.**

Repetition allows mastery. Team members will become experts at their specialty the longer they repeat the work. And expertise can help generate pride of ownership in the job and feelings of contribution to the team effort.

Frequent change can cause confusion and discontentment.

2.4.2 Cleaning Systems Flow and Schedule

Introduction The Sierra Environmental Cleaning Systems flow should follow a top-down approach. All work begins on the uppermost floor of the building. As each floor is finished, turn off the lights if possible.

Restroom specialists Restroom specialists begin on the top and bottom floors at the beginning of their shifts. They move from floor to floor, towards each other, and follow standard routines and schedules to the end of their shift.

Cleaning flow and schedule Following is the cleaning flow and schedule for all specialists:

Floor	Staff	Time	Tasks
6th	Trash & Dust Specialists (1, 2, and 3)	5:15 PM	1 and 2 SW to NW paths. 3 SE to NE path.
	Vacuum Specialists	5:15 to 5:35 PM	Break / copy rooms
	Vacuum Specialists	5:35 to 6:10 PM	Vacuum (MTThF)
	Vacuum Specialists	5:35 to 6:10 PM	Detail Vacuuming (Wed)

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2.4.2 Cleaning Systems Flow and Schedule, Continued

Floor	Staff	Time	Tasks
5th	T&D Specialists	6:05 to 7:00 PM	1 and 2 SW to NW 3 SE to NE.
	Vacuum Specialists	6:13 to 6:40 PM	Break / copy rooms
	Vacuum Specialists	6:40 to 7:00 PM and 7:10 to 7:30 PM	Vacuum (MTThF)
	Vacuum Specialists	6:40 to 7:00 PM and 7:10 to 7:30 PM	Detail Vacuuming (Wed)
4th	T&D Specialists	7:15 to 8:05 PM	1 and 2 SW to NW 3 SE to NE.
	Vacuum Specialists	7:35 to 7:55 PM	Break / copy rooms
	Vacuum Specialists	8:00 to 9:00 PM	Vacuum (MTThF)
	Vacuum Specialists	7:55 to 9:10 PM (1/2 hr lunch 9:10)	Detail Vacuuming (Wed)
3rd	T&D Specialists	8:07 to 9:10 PM (lunch at completion of floor)	1 and 2 SW to NW 3 SE to NE.
	Vacuum Specialists	9:45 to 10:30 PM	Break / copy rooms
	Vacuum Specialists	10:35 to 11:00 PM and 11:10 to 11:35 PM	Vacuum (MTThF)
	Vacuum Specialists	10:35 to 11:00 PM and 11:15 to 12:00 AM (10 min break at 9:00)	Detail Vacuuming (Wed)
2nd	T&D Specialists	9:45 to 10:40 PM (at conclusion of break at approximately 11:00 PM, report to supervisor for end of shift assignments)	1 and 2 SW to NW 3 SE to NE.
	Vacuum Specialists	12:05 to 12:30 PM	Break / copy rooms
	Vacuum Specialists	12:30 to 1:10 AM	Vacuum (MTThF)
	Vacuum Specialists	12:30 to 1:20 AM	Vacuum (Wed)

Continued On Next Page

2.4.2 Cleaning Systems Flow and Schedule, Continued

Floor	Staff	Time	Tasks
1st	Utility Specialist +1		

2.4.3 Custodial Assignments

Introduction

Day staff will communicate any specific/special areas to the CS II via Nextel cellular/radio.

Floor	Areas Requiring Special Attention
Basement	• Garage
1st Floor	• Mail / Copy Room • Dock Area • Video / Media Rooms • Board Room • Personnel (Confidential) • Cashiers (Confidential) • Dock Corridors (Stratica tiles) • Bike Locker • Showers/Lockers
3rd Floor	• Tenant Computer Equipment/Server Room
5th Floor	• Executive Areas • Legal Office Areas • Patio
All Floors	• Elevator Cabs • Halls/Corridors • Stock Supplies

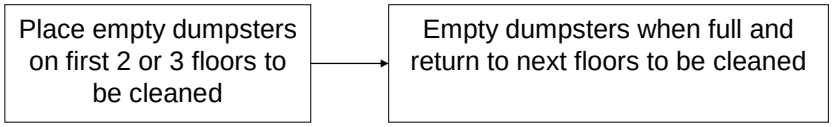
Task assignments

The various custodial task assignments are documented and available on the computer network.

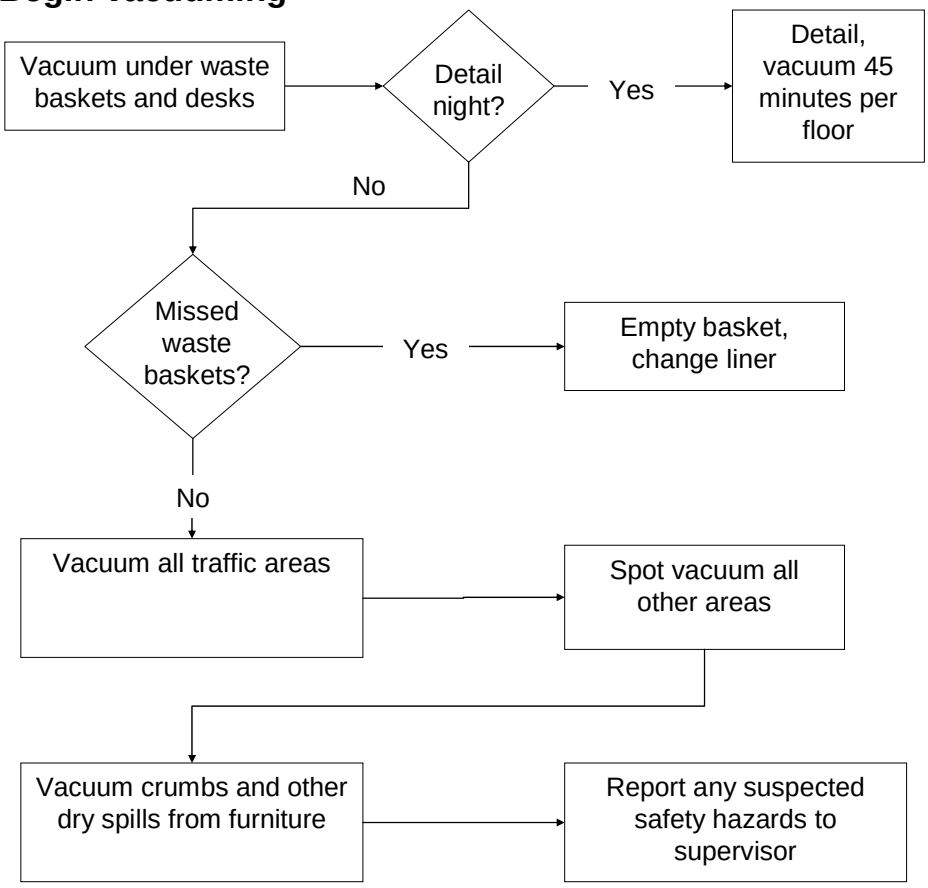
In addition, see the following samples:
- Vacuum Specialist Flow Chart (page 2-23)
- Trash/Dusting Specialist Flow Chart (page 2-24)
- Restroom Specialist Flow Chart (page 2-25)
- Utility Specialist Flow Chart (page 2-26)

2.4.4 Vacuum Specialist Flow Chart

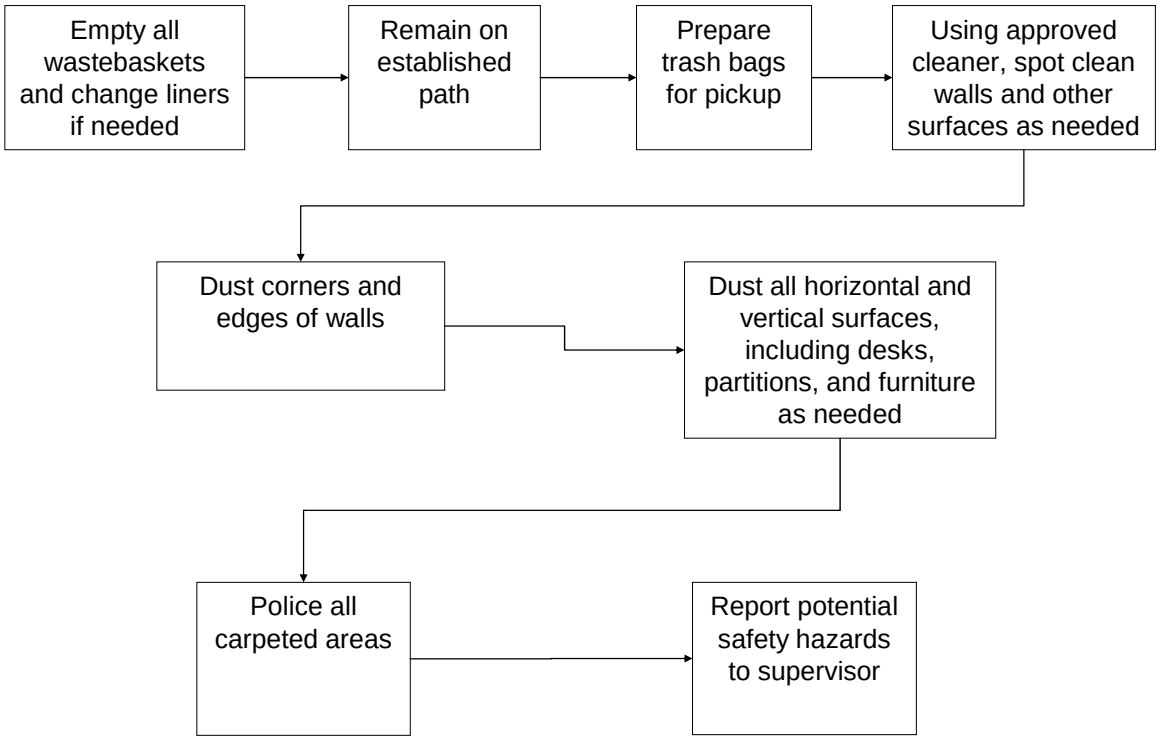
Prepare dumpsters for trash/dusting specialists



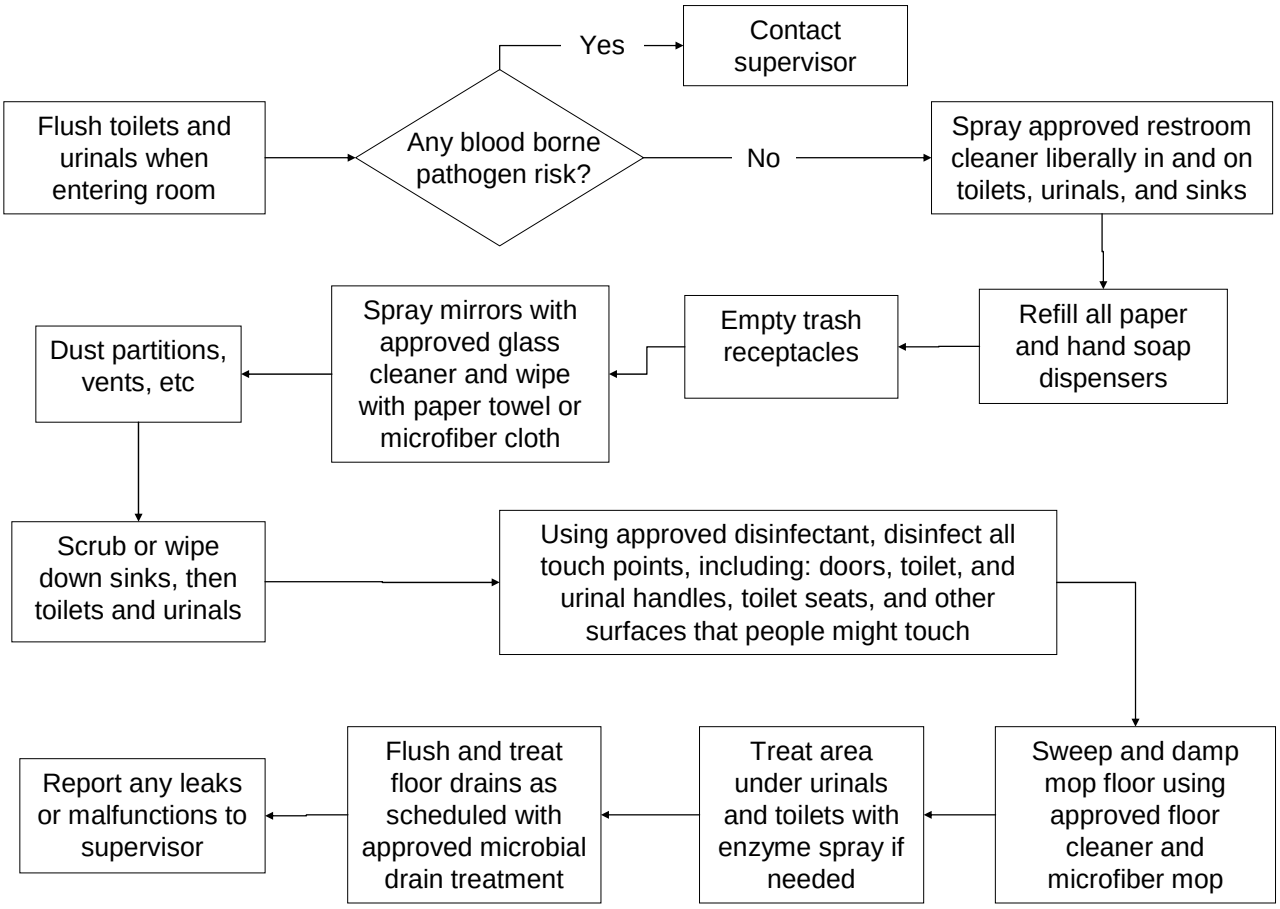
Begin vacuuming



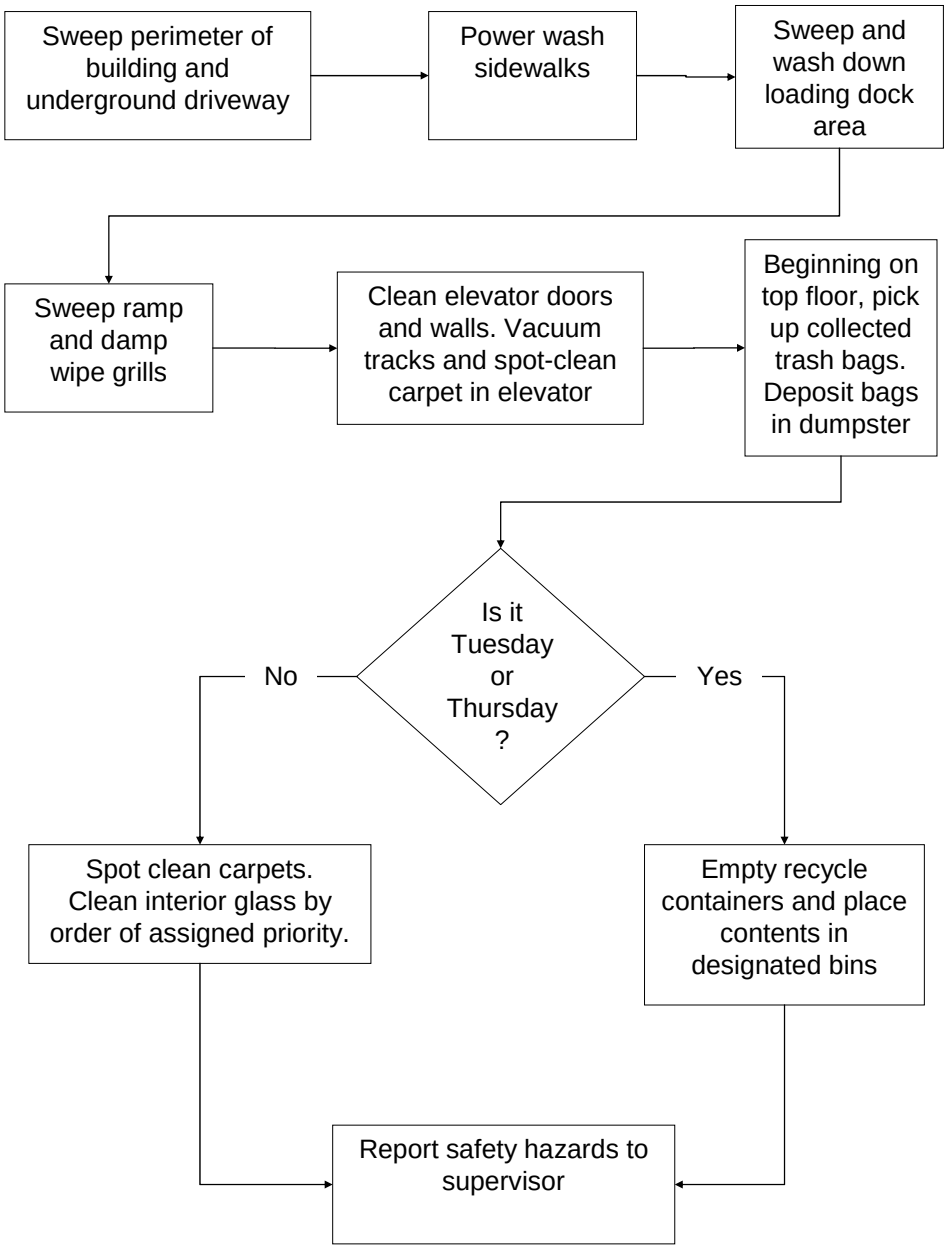
2.4.5 Trash/Dusting Specialist Flow Chart



2.4.6 Restroom Specialist Flow Chart



2.4.7 Utility Specialist Flow Chart



2.5 Environmental Maintenance Program

Introduction

Responsibility for the building environment and properly maintaining its cleanliness belongs to everyone who uses or cares for the facility.

Poor indoor air quality (IAQ) and exposure to chemicals leads to unsafe and unhealthy conditions for the people exposed to these unsatisfactory surroundings.

To reduce and hopefully eliminate unacceptable building environments, care must be taken to ensure optimum working conditions and steps regularly taken to reevaluate products and processes that will maintain healthy and safe work settings.

Maintenance guidelines

Modern concepts in performing good environmental maintenance include:

- implementation of sustainable management principles
- the use of green products
- personally presuming a stakeholder's share of the maintenance responsibility
- keeping dust and dirt out
- maintenance of building equipment and tools
- adherence to regular maintenance cycles to achieve best possible building function to prevent air quality degradation

The Building and Property Management (BPM) branch is committed to implementing these concepts whenever and wherever possible.

2.5.1 Sustainable Maintenance Program

BPM's role

BPM is the lead stakeholder. Its core competencies, such as the Sierra Environmental Cleaning Systems program, position it with an opportunity to have a positive impact upon:

- individuals who work in and visit our buildings
- business partners, who can further our work efforts by making strategic choices and aid in long-term planning

Continued On Next Page

2.5.1 Sustainable Maintenance Program, Continued

Cleaning systems goals

BPM has purposefully redirected its cleaning work force towards being a team that:

- Carries out a work plan that can be sustained over a period of time by applying all of its resources to maximize energy efficiencies.
- Creates a positive atmosphere of pride in the job and commitment to achieving excellent results.
- Produces an end product – i.e., a consistently clean building.
- Realizes the importance of each individual's contribution to the team endeavor.
- Actively promotes environmental awareness programs including:
  - controlling pollution by using environmentally preferred products
  - using products that protect and safeguard the life of the constructed finishes
  - operating buildings within their design intent to conserve energy and provide healthy and safe business buildings
  - establishing and following a purchasing and disposal program to manage recycled materials

Sustainable goals

Sustainable goals:

- Make better use of all resources
- Reduce waste in environmental performance
- Achieve economic business stability and efficiency
- Establish an equitable and well-balanced environment for the work force

2.5.2 Routine Shift Guidelines

Introduction

The following routines use the above environmental and sustainable maintenance goals as a general guide for room cleaning, lobby cleaning and restroom cleaning.

Routines are divided by day and swing shifts.

The CS III and the Building Manager must monitor day operations to ensure all tasks are performed properly.

Continued On Next Page

2.5.2 Routine Shift Guidelines, Continued

Day shift

Day shift tasks are performed daily, Monday – Friday.

Day Shift Task	Task Details
1. Clean secured offices	• #049 Personnel • 3rd Floor Computer Room • #051 Director's office • Legal • Personnel
2. Mop floors	Put up signs and mats if floors are wet due to spills or rain.
3. Spot clean as needed	• Carpets • Elevator cabs • Office areas
4. Monitor and clean as needed, with a focus on reducing particles and contaminants from entering the building, and protecting building finishes	• Entrances to buildings • Lobby • Glass doors and windows • Exterior sidewalks • Restrooms • Dock and garages • Outside marble
5. Clean exterior ash urns	
6. Clean and empty exterior trash receptacles	
7. Change light bulbs	All bulbs are to be building standard type to meet light color and wattage
8. Receive and verify orders, stock	
9. Check restrooms and lactation rooms on a daily systematic basis	Considering the building's specific use patterns (typically three times a shift), spot clean and restock soap and paper products.

Swing shift

Swing shift tasks are divided by frequency and type of work as follows:

- Nightly, Monday – Friday
- Weekly
- Utility Work
- Back-up coverage
- Custodial Closets
- Restrooms (Daily, Weekly, and Monthly)

Continued On Next Page

2.5.2 Routine Shift Guidelines, Continued

Swing Shift Nightly Tasks (Monday – Friday)
1. Empty Trash
2. Clean and stock restrooms
3. Clean empty sinks and countertops
4. Damp mop tile floors
5. Vacuum common traffic areas
6. Carpet spotting
7. Clean Elevators
8. In one sector per day, detail vacuum, dust furniture, blinds and sills

Swing Shift Weekly Tasks
1. Check and report inventory needs in storage rooms on each floor. Restroom crew stocks hopper rooms from storage weekly or on an as-needed basis.
2. Spot clean walls, solid doors, doorframes and kick plates
3. Wipe clean all visible fire extinguishers and related equipment to include fire hose cabinets
4. Dust mop stairwells. Spot mop as needed.
5. Dust/damp wipe all stairwell handrails and ledges
6. Clean ceiling air returns and diffusers

Swing Shift Utility Work
1. Hard Surface Floors. For marble/granite entryways, daily sweeping and mopping and the use of the auto scrubber twice a week. For the Stratica surface, requires daily vacuuming and mopping twice per week or as needed.
2. Carpeted Floor Extraction
3. Common Areas
4. Offices
5. Pressure Washing dock and sidewalks

Swing Shift Back-up Coverage
1. The assistant assignment will be rotated to those who wish to participate on a monthly basis.
2. In order to avoid scheduling conflicts, the back-up assistant will be pulled from the utility crew.

Continued On Next Page

2.5.2 Routine Shift Guidelines, Continued

Swing Shift Custodial Closets (Daily Tasks)
1. Leave area in clean, organized fashion. Do not store trash in janitor closet.
2. Sweep floors.
3. Clean sinks.
4. Keep shelves and supplies neat and orderly at all times.
5. All chemicals stored in area will require proper labeling to meet OSHA standards.
6. No personal food, dishes or eating utensils can be stored in these areas.

Swing Shift Restrooms (Daily Tasks)
1. Sweep and damp mop floors using disinfectant solution.
2. Clean and disinfect all surfaces of basins, bowls, and urinals with approved green cleaning products.
3. Clean and disinfect and refill soap dispensers that do not contain antimicrobial agents, toilet paper and hand towel dispensers.
4. Restock vending machines.
5. Empty waste paper and sanitary napkin receptacles.
6. Clean and polish mirrors, basin shelves, bright work (faucets, flushers, wash basin traps and piping).
7. Wash both sides of toilet seats with germicidal cleaner.
8. Wipe down partitions, including hinges and hardware.
9. Spot-clean restroom walls and partitions (report graffiti).
10. Clean and sanitize all vanity tops.
11. Wipe and dust all shelving.
12. Clean doors, hinges, frames and door handles.

Swing Shift Restrooms (Weekly Tasks)
1. Wipe clean all ceiling vents and access doors.
2. Thoroughly scrub tile walls.
3. Thoroughly clean all fixtures to insure that no build up of salt or lime occurs.
4. Fill floor drains with water.
5. Remove scuffmarks from door kick plates.

Continued On Next Page

2.5.2 Routine Shift Guidelines, Continued

Swing Shift Restrooms (Monthly Tasks)
1. Machine scrub restroom floors. Refinish as required.
2. Wash all ceramic tile walls.
3. Wash down partition and urinal screens, including doors, hinges and seams.
4. Dust and clean ceilings reducing indoor air contaminates. Pay close attention around sprinkler caps, access doors and light fixtures.

2.5.3 Interior Pest Management Plan

Introduction

Building managers and custodial staff share a responsibility to keep buildings free of pests.

The interior pest management plan for the building is a subset of a larger Integrated Pest Management Plan, which incorporates pest management for the interior as well as the exterior of the building.

Manager's responsibility

It is the building managers' responsibility to develop, implement, and monitor an integrated pest management plan that includes both the interior and exterior of the building.

More information about managers' responsibilities and integrated pest management plans can be found in the Integrated Pest Management Plan chapter of the Best Practices Manual.

Custodians' responsibility

Custodians are responsible for performing duties associated with the interior aspects of the pest management plan.

A complete list of responsibilities is contained in the Integrated Pest Management Plan chapter of the Best Practices Manual.

In general, some custodians' duties include:

- Keeping dumpster lids and exterior doors closed
- Regularly emptying recycling bins
- Cleaning recycling bins
- Reducing sources of water for pests (wet mops, clogged drains, etc.)
- Informing supervisors of the presence of pests

Continued On Next Page

2.5.3 Interior Pest Management Plan, Continued

Cleaning product requirements

An important aspect of pest management is the cleanup of substances used for pest control.

Cleaning products must meet the Green Seal GS-37 standard if applicable. Or, if GS-37 is not applicable, products must be used that comply with the California Code of Regulations maximum allowable Volatile Organic Compounds (VOC) levels.

2.6 Inventory Management and Purchasing Program

An inventory management system aids in the efficient use, maintenance, and purchasing of:

- Tools and Equipment
- Supplies
- Chemicals

2.6.1 Tools and Equipment

General guidelines

All BPM custodial equipment must meet LEED- EB criteria for sustainable practices.

All custodial equipment must effectively reduce building contaminates, reduce injury to employees and maintain specified criteria for the Sierra Environmental Cleaning Systems program prior to purchasing the equipment.

All major appliances such as washers and dryers shall be Energy Star rated.

Equipment requirements

Various types of custodial equipment are listed below, as are the mandatory requirements for those pieces of equipment. These requirements are required for LEED-EB certification and should not be modified.

Equipment	Requirement
Vacuum cleaners	Must meet the requirements of the Carpet & Rug Institute “Green Label Testing Program”. See Page 453 in the LEED-EB Reference Guide dated June 2005.
Hot water extraction equipment used for cleaning carpets	Must remove sufficient moisture to allow carpets to dry in less than 24 hours.
Powered equipment such as floor buffers, burnishers and automatic scrubbers	Must be equipped with vacuums, guards and other devices for capturing fine particles. Must operate with a sound level less than 70db.

Continued On Next Page

2.6.1 Tools and Equipment, Continued

Equipment requirements, continued

The requirements are continued below.

Equipment	Requirement
Powered equipment such as floor buffers, burnishers and automatic scrubbers	Must be ergonomically designed to minimize vibration, noise and operator fatigue. Should have rubber bumper guards to reduce damage to building finishes and surfaces
Battery-powered equipment	Gel batteries are preferred.
Micro fiber technology	Must be used to reduce cleaning chemical consumption.

Equipment inspections

BPM Custodial Supervisor IIs will be responsible for inspecting existing equipment to determine if the equipment is operating within manufacturer's specifications.

All equipment which is damaged must be identified, removed from service and repaired or identified as surplus equipment if the item can not be repaired.

Custodial supervisors will be responsible for maintaining monthly inspection and maintenance and repair logs using BPM's PREVENTIVE MAINTENANCE PLAN FOR EQUIPMENT.

This log is to include date of purchase, State ID tag numbers, manufacturer's cut sheet, specifications and date of repairs.

Note: Maintenance of this log is mandatory for LEED-EB certification.

Equipment tracking

An Excel-based inventory log is used by custodians and supervisors to track:

- The number, type, location, and manufacturer of equipment in stock
- State Property ID tag numbers
- Equipment weight
- The need for training before use

Maximo is used for tracking the equipment and any damages. Any damaged equipment can be logged and then reported by the supervisor to the Trades personnel by generating a Maximo work ticket.

Continued On Next Page

2.6.1 Tools and Equipment, Continued

New equipment

New BPM custodial equipment is to be selected based on LEED-EB criteria as stated in the *LEED-EB Reference Guide, version 2.0.*

All new equipment is to be tagged with State identification tags and included on the BPM Preventive Maintenance Log.

All new manufacturers' specifications are to be included in the BPM Preventive Maintenance Log.

2.6.2 Supplies

Introduction

Custodial Supervisors are responsible for maintaining an adequate supply of paper goods and cleaning materials for use by the custodians. It is essential to provide the custodian staff with the proper materials to do their job effectively.

Inventory records are necessary to control stock levels as well as control staff usage. By recording the amount of material delivered to each floor on a routine basis, the Custodian Supervisor and Building Manager will be able to:

- Control expenditures.
- Control overstocking.
- Ensure sustainable products are being used and non-sustainable products are being identified, removed, and properly disposed.
- Facilitate review of products to ensure methodical comparison, introduction and maintenance of sustainable products which will meet LEED-EB criteria.
- Establish a benchmarking and price comparisons tool for control or justification of costs.
- Ensure all team members have sufficient and timely supply of all products needed to do best quality work.
- Manage administrative time to order materials, tools and supplies one time per month.

Continued On Next Page

2.6.2 Supplies, Continued

Storage assignments

Assigning storage areas for specific inventory items provides allows for efficient tracking of inventory.

All storage areas will be assigned as follows:

These items . . .	. . . are stored here
• Bulk supplies • Light hand tools	Basement storage rooms and main storage room on Floor 1 of building #054
• Kaivac • Extraction machine • Buffers and related parts • Host machine	#049 Elevator pit storage room and the storage rooms on each side of the Dock Master's room in the loading dock of #053.
• Mops • Buckets • Shelf products/supplies for restroom cleaning	Floor hopper rooms, floors 1 – 6
• Barrels • Vacuums • Dusters • Shelf products/supplies for office cleaning	Floor Storage rooms, floors 1 – 6

Inventory tracking process

The initial step in recording inventory levels is to take a manual count of supplies and record that count.

After the manual count is complete, you will use Excel worksheets to help automate the tracking of inventory levels and the calculation of purchasing needs.

Use the following procedure to perform inventory tracking:

Inventory Tracking Procedure	Details
Step 1	Each Friday night the Custodian Supervisor and a Custodian will count tools; supplies and products stored in Floor Storage rooms and enter count on the **Custodial Weekly Inventory** form dated for the week. For a sample, see Appendix A.

Continued On Next Page

2.6.2 Supplies, Continued

Inventory Tracking Procedure	Details
Step 1, Continued	The **Custodial Weekly Inventory** form will be used to communicate any special sustainable product ordering needs or issues entered in the Comments section. This form will be turned in each Monday to the assigned Custodian Supervisor to replenish the floor stock as needed to maintain tools, supplies and products for the coming week.
Step 2	Using the Supply Request Form, the Custodial Supervisor will perform the weekly master count each Monday. Monday counts will include review of the order needs communicated through the Custodial Weekly Inventory and a shelf count performed by the Custodian Supervisor of the Bulk Storage. On the third Monday of each month supplies, product and/or small tools/equipment will be ordered in accordance with the Monthly Inventory Report minimums to ensure maximum levels of stock are maintained. In addition to the tools, supplies and products count, all equipment will be reviewed each month for maintenance needs, repairs and/or parts ordered and/or salvaging for replacement orders allowing sufficient time for the ordering and delivery process to avoid running out of tools, supplies and product.
Step 3	The Custodial Supervisor will place orders by the first week of the month. See Ordering process on page 2-41 for more information about the ordering process. Custodial Supervisor will calendar anticipated delivery date of the order and track as needed to ensure timely delivery. The Custodial Supervisor will supply custodial staff with order information and the delivery date.

Continued On Next Page

2.6.2 Supplies, Continued

Inventory Tracking Procedure	Details
Step 4	When the ordered supplies arrive, both the Day Porter and Custodial Supervisor have specific responsibilities. The Day Porter will: • accept delivery • check off the packing slip to verify receipt of the full order • communicate any problems to Custodial Supervisor for resolution • restock storage rooms maintaining proper order of storage • deliver the packing slip to the Custodial Supervisor The Custodial Supervisor will: Attach the packing slip to the Standard Purchase Order 65 form and Purchase Order for submittal to BPM's Central Purchasing Unit.
Step 5	When products containing chemicals are depleted and their containers are empty, return all chemical containers to the vendor from which the chemicals were purchased. The vendor will be responsible for picking the containers up from the State at a designated location. The State is not to dispose of empty chemical containers in local landfills. If there are any chemicals and/or containers in question, the CS II/III is to contact BPM's Health & Safety Unit for direction.

Automated inventory tracking

Supplies are tracked using an inventory program consisting of seven linked Excel worksheets.

The program was established to monitor the large amount of supplies that are needed to sustain the cleaning program that covers all five of the East End Buildings.

The first three inventory worksheets are named for the three main storage rooms. They contain a working grid for each product that is stored in that room.

Continued On Next Page

2.6.2 Supplies, Continued

Automated inventory tracking, continued

Two other worksheets are named **Report** and **M. Report** (the Manager's Report). The M. Report can be shortened by eliminating unwanted data.

The final two worksheets are named **Beginning** and **Ending**. Although these sheets appear identical, they are not. Each of the forms lists every item that is being monitored in that room.

Using inventory worksheets

The inventory worksheets are linked. Perform the following three steps in the order in which they appear.

Procedure	Details
Step 1	After taking inventory of all products, in all inventory storage rooms, enter totals on the Beginning worksheet. This will populate the first three sheets with opening balances in each grid. This step will be different, after the first month.
Step 2	On the first three pages, each product grid consists of six columns and eight rows. The left hand column displays supplies that are available for use. The top row has been filled by the Beginning worksheet, showing the month's beginning balance. Enter information as described below: • Enter any new deliveries during the month in rows 2 thru 6 • Row 7 will show a total of product available • Row 8 shows the amount of product that is still available, after used amounts are deducted • The other five columns, one for each building, are where the information from the employee sheets is entered • The last row will show a total for each building
Step 3	As the information is input, the reports and the Ending worksheets are developed. At the end of the month, paste the information that appears on the Ending sheet is pasted onto the Beginning sheet of a blank program. This begins a new month's report.

Continued On Next Page

2.6.2 Supplies, Continued

Ordering process

All ordered supplies must meet State requirements for recycled-content products (RCPs) as well as Environmentally Preferable Purchasing (EPP) guidelines:
(http://www.green.ca.gov/EPP/default.htm).

For lists of supplies which meet RCP requirements, see the State Agency Buy Recycled Campaign web site:
(http://www.ciwmb.ca.gov/BuyRecycled/StateAgency/).

For more information about supplies that meet EPP guidelines, see Purchasing sustainable cleaning products on page 2-42.

Procedure	Details
Step 1	Once the Custodial Supervisor ensures that desired supplies, they complete and submit the Bid Quote Worksheet to the Building Manager for approval and signature For a sample of the Bid Quote Worksheet, see Appendix A. The worksheet will be forwarded to the Central Purchasing Unit at BPM Headquarters.
Step 2	After review, BPM Headquarters will fax the Purchase Order back to the assigned Custodial Supervisor. The assigned Custodial Supervisor will maintain a file system for all purchases, deliveries, back-orders, etc.
Step 3	The Custodial Supervisor will calendar anticipated delivery date of order and track as needed to ensure timely delivery.

2.6.3 Chemicals and Cleaning Products

Chemical storage guidelines

Chemicals must be stored in isolated janitorial closets.

Isolated janitorial closets must have the following features:

- Structural deck-to-deck partitions with separate outside exhausting
- No air re-circulation and negative pressure
- Hot and cold water and drains plumbed for appropriate disposal of liquid waste in areas where janitorial equipment and chemicals are stored and/or water and cleaning chemical concentrate mixing occurs

Continued On Next Page

2.6.3 Chemicals and Cleaning Products, Continued

Chemical storage guidelines, continued

Chemical storage in all floor hopper rooms and bulk storage in supply rooms must comply with BPM's Health & Safety guidelines.

Chemicals must to be either stored in the original containers. If a secondary container is used, the secondary container needs to be identified with the chemical. If there are any chemicals or containers in question, the Custodian Supervisor II/III must contact BPM's Health & Safety Unit for direction.

A Material Safety Data Sheet (MSDS) for each chemical stored must be placed in an MSDS binder and located with the chemicals stored.

Chemical Usage and Disposal Policy

The following policies must be followed when using and disposing of cleaning chemicals:

- Custodian Supervisors must follow BPM's Injury and Illness Prevention Program (IIPP) requirements. The IIPP manual is located in the Building Manager's office.
- When mixing chemicals, a system must be used that minimizes expose to concentrated cleaning chemicals.
- Ensure proper disposal of empty chemical containers. If possible, require vendor to dispose of containers.
- Sierra Environmental Technologies will be responsible for picking the containers up from the State at a designated location. The State is not to dispose of empty chemical containers in local landfills.
- Purchase cleaning products packaged in recyclable/reusable containers, thereby minimizing waste.

Purchasing sustainable cleaning products

90% or more of all custodial purchases must be comprised of sustainable products. Avoiding the use of toxic chemicals prevents hazardous substances from negatively impacting indoor air quality.

For a list of products that are sustainable and approved by the Department of General Services for use in State buildings, see the Best Practices Manual at the Environmentally Preferable Purchasing web site:

http://www.green.ca.gov/EPP/Introduction/default.htm

If a product is not currently listed on the web site, use the following guidelines when evaluating a cleaning product for purchase. Any new cleaning products must be approved by Environmental Safety Health and Operations Program (ESHOP) manager.

Continued On Next Page

2.6.3 Chemicals and Cleaning Products, Continued

Purchasing sustainable cleaning products, continued

Look for

In general, look for cleaning products with the following characteristics:

- available in concentrated form
- biodegradable
- not in aerosol can which contain propellants
- no toxic ingredients (no carcinogens or hazardous wastes)/non-toxic to human and aquatic life.
- packaged in recyclable/reusable container (minimal waste)
- are not petroleum-based and do not contain petrochemical compounds
- produce minimal or no irritation to skin, eyes, respiratory system
- do not contain unnecessary dyes and fragrances
- are not corrosive or highly flammable
- work optimally in room temperature water

Avoid

Avoid cleaning products which have the following labels (check both the product container and MSDS):

- Warning
- Caution
- Danger
- Flammable
- Poison
- Reactive
- Should be avoided

2.7 Employee Orientation and Training

The following topics are discussed below:
- Orientation
- Education and Training

2.7.1 Orientation

Introduction

Basic orientation topics will include:
- individual expectations
- rules and regulations orientation
- quality of work requirements

Hands-on skills and procedures training will be provided so that each employee will not only learn sustainable practices (i.e. proper use of sustainable products. chemicals, and disposal of equipment and packaging) but also system cleaning methods engineered for the building.

Introduction, Continued

In addition, during orientation, employees will be given instruction regarding basic job duties such as:
- trash removal
- inclement weather and wet floor procedures
- emergency procedures

Custodial Supervisors will be responsible for providing all new custodians with the above training within the first (5) days of the employees employment.

Trash Removal

Custodians are to remove only what is in the tenant's wastebasket. Any other items will be removed only if they are plainly marked **Trash**.

Custodians are not to claim aluminum cans for personal gain.

Continued On Next Page

2.7.1 Orientation, Continued

Inclement Weather and Wet Floor Procedures

Rain combined with building traffic can make lobby floors wet, dirty, slippery and dangerous.

Wet floors should be mopped or squeezed and floor mats wet vacuumed until the floors are dry.

Floor mats, caution signs and umbrella bags must be used whenever floors are wet.

Emergency Procedures

The Custodial Supervisors and the Building Manager are to ensure that all of the employees are trained to properly respond to emergencies.

These emergencies could include fire, smoke, flooding, electrical failure, health problems, bomb threats, or suspicious persons in the building.

Routine safety training and a copy of the building's Emergency Response Plan are to be provided to all staff.

All new employees working in the building shall be given a copy of the Emergency Plan within a few hours of starting their employment.

2.7.2 Education and Training

Introduction

In order to provide quality service to building occupants, custodians must be well trained.

The Department's mandatory training includes New Employee Orientation, Violence Prevention, Sexual Harassment Prevention, and Cultural Diversity training. This training is to be provided to all staff on an annual basis.

Initial custodial training will consist of basic orientation (see Orientation on page 2-44).

Custodial Health & Safety training will be provided through mandatory monthly safety meetings and tailgate meetings that occur before each of the employee work shifts. These meetings should provide training on topics such as MSDS, back safety, etc.

Continued On Next Page

2.7.2 Education and Training, Continued

Continuing education

In addition, Custodial Supervisors and staff will be afforded opportunity for educational growth via departmental and in-house training. In-house training may consist of a combination of personalized instruction from vendors, video instruction, supervisors, and skilled contracted professionals.

Individual Development Plans are to be completed for all staff requesting one. Custodial Supervisors are to work with their staff to assist them in the development of their personal growth plans. A copy of each IDP is to be kept in the Regional employee's personnel file.

Training records

Custodial Supervisors will be required to maintain Quarterly Training Records certifying and documenting each person's training dates, attendance and sustainable subject practices discussed. These training sessions can be combined with BPM's current OSHA IIPP Safety Meeting sessions, which occur monthly.

A record is to be kept for all training and provided to the office staff for recording purposes in ABMS. A sign-in sheet is to be provided and must capture the following information:

- date training is provided
- person conducting the training
- subject matter
- signature of employees in attendance

All sign-in sheets are to be provided to the Office Technician for recording and filing. The OT is to establish and maintain a LEED-EB training file so all documents can be obtained for the LEED-EB re-certifying process.

3 Integrated Pest Management

Chapter contents

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3.1 Introduction

Introduction

Integrated Pest Management (IPM) is a common-sense approach to pest management that uses a variety of methods to control pests. Chemical pesticides may be part of an IPM program; however, considerable effort is also put towards preventing pest problems by controlling conditions which may attract and support pests.

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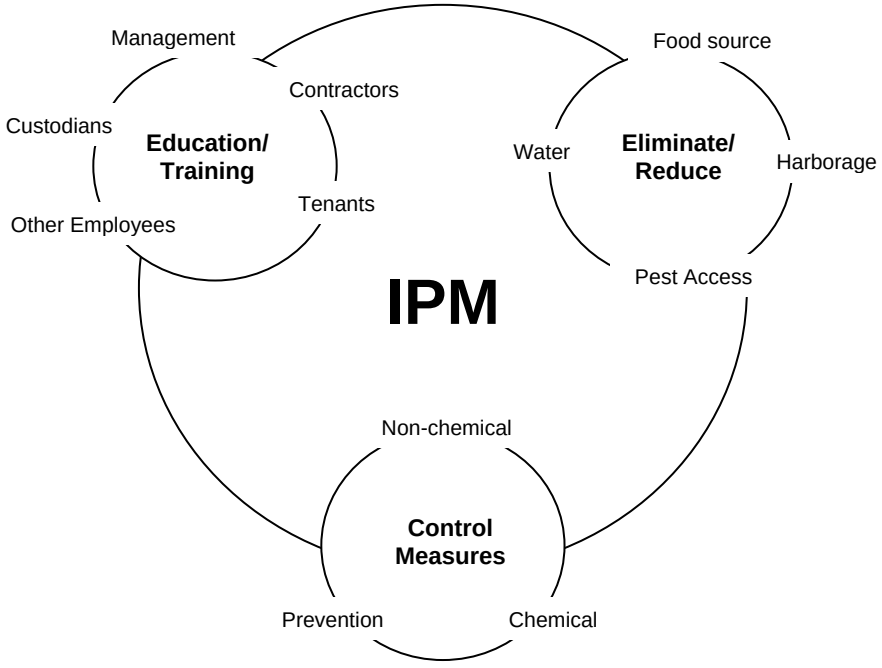
3.1 Introduction, Continued

Introduction

Structural IPM programs (pest management in and around buildings) focus mainly on:

- eliminating or reducing sources of food, water, and harborage that are available to pests
- limiting pest access into and throughout buildings.



In addition, management measures such as sanitation, and building maintenance and modifications are important elements of a structural IPM program.

The success of such a program requires the collaborative efforts of everyone involved in the management and maintenance of a building, including service contractors, tenants, custodians, and other employees.

3.2 IPM Objectives and Strategies

A general objective of the IPM plan is the preservation of natural systems and long-term health of the area. More specifically, the plan:

- Provides better pest management
- Maintains a safe and healthy workplace
- Lowers costs.

3.2.1 History

In accordance with the California Code of Regulations Title 3, Food and Agriculture, Division 6, Pesticides and Pest Control Operation, the DGS RESD BPM recognizes Integrated Pest Management (IPM) as a sustainable measure of EO D-16-00 and EO S-20-04.

Since August 2000, the DGS RESD BPM incorporated IPM in State office buildings as the pest management strategy that focuses on long-term prevention of suppression of pest problems through a combination of techniques such as:

- monitoring for pest presence and establishing treatment threshold levels
- using non-chemical practices to make the habitat less conducive to pest development
- improving sanitation
- employing mechanical and physical controls.

A modified IPM program for the East End buildings became effective October 1, 2002. The Education Building was the first building in the complex to have an IPM program designed specifically for the grounds surrounding the building.

Outdoor organic fertilizers, hand weeding, and introduction of lady bugs are all part of the program to reduce chemical usage. The original IPM program did not have a structured plan for indoor areas but relied on a service contract on an as-needed basis to manage indoor pest infestations.

It is BPM's intent that this building as well as all the buildings in the DGS portfolio implement an IPM program which includes all aspects of a successful IPM program as outlined above.

3.2.2 Strategies and Solutions

Strategies and Solutions

The following elements should be considered when selecting pest-management strategies and solutions:

1. Monitor for pests and treat only for what is found.
2. Protect the State's capital investment in DGS's portfolio of buildings and their surrounding grounds
3. Maintain a building environment that protects the health and welfare of building occupants.
4. Preserve natural resources through rigorous application of energy conservation measures.
5. Set for each pest at each site and identify, in an IPM implementation plan, an injury level based on the degree of biological, aesthetic or economic damage the site can tolerate. Decisions should consider the potential overall damage to the general environment, including all aspects of life cycle analysis; including environmental impact to non-target organisms; hazards to human health; toxicity to aquatic life, and the mobility and persistence of proposed solutions within the environment.
6. Consider a range of potential treatments for the pest problem. Employ non-pesticide management practices first. Consider the use of chemicals only as a last resort and select and use chemicals only within an IPM program and/or in accordance with knowledgeable and identified service advisors.
7. Determine the most effective treatment time, based on pest biology timing, which is relative to vulnerable periods in the pest's life cycle with the least impact on natural enemies. Timing considerations to include best ability to produce long-term reduction in the pest; ability to be carried out effectively and cost effectively. Factors to consider are weather, seasonal changes in wildlife use and local conditions,
8. Design and construct indoor and outdoor areas to reduce and eliminate pest habitats.
9. Modify current pest ecosystems to reduce food and living space
10. Conduct ongoing educational programs and train staff and tenants with pest biology, the IPM approach, and new pest management practices as they become known and or available.
11. Monitor and measure treatment to evaluate effectiveness.
12. Keep and maintain organized monitoring records.
13. Use the most cost-effective means of performing maintenance and operation functions.

3.2.3 Duties

An IPM plan is only as strong as the commitment of those involved. The following personnel have specific tasks that ensure the success of the plan:

- Program Manager
- Building Manager
- Pest Management Lead Person
- BPM Employees
- Building Occupants
- Pest Management Contractor

Program Manager

BPM's Sustainability Program located at 707 3rd Street, West Sacramento has been given the responsibility of administering and overseeing the Branch's IPM program.

Sustainability Program Manager Contact Information	
Name	
Phone Number	

Building Manager

The Building Manager must be notified:

- when pest problems are identified
- before pesticide applications are performed

The Building Manager must be kept informed, but defers to the knowledge and expertise of the IPM Program Manager and Pest Management Lead Person.

Building Manager Contact Information	
Name	
Phone Number	

Pest Management Lead Person

Each building site will have a Pest Management Lead Person designated who will be responsible for managing the program. The supervisor acts as a liaison between the pest management contractor and building management, building recycling coordinator, employees and tenants.

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Pest Management Lead Person, Continued

The supervisor will also be responsible for record keeping for the LEED-EB documentation and maintaining files on pest contractor's recommendations, monitoring and treatment forms. The supervisor will be the person that pest management contractor, employees and tenants will contact when pest problems arise.

The Pest Management Lead Person will also be responsible for ensuring a pest management contract must contain language which addresses specific elements of BPM's IPM program. See attached Guidance Sheet/Building Management Staff In Charge of Pest Management Services and Contracts.

The ultimate goal of this person is to ensure that the IPM approach is followed. The site manager will receive their instruction and direction from BPM's Environmental Safety Health and Operations Program (ESHOP) unit.

Pest Management Lead Person Contact Information	
Name	
Phone Number	

BPM Employees

The IPM program represents a fundamental change in the way BPM manages pest infestation on DGS properties. Employees in all management, trades and engineering levels will be responsible for participating in this program as part of their assigned daily duties. Employees will play a daily role in the identification, management and elimination of pests on DGS properties.

Building Occupants

Building occupants should be involved in this program to ensure that their health and safety concerns are not jeopardized. Their role will be to maintain their personal work environment to a level that will not encourage and harbor pests.

Pest Management Contractor

Contractors awarded a pest management contract will be responsible for practicing IPM concepts as identified in their contract with the State and working directly with the building's on site IPM Manager.

3.3 IPM Program

Below are steps for implementing the IPM plan and selected strategies for addressing all pest problems and landscape maintenance. Project management and staff shall follow the DGS IPM (IPM) approach outlined below. Field staff shall be fully trained to implement the strategies selected and record the steps followed and management practices used.

The following program components integrate all available tactics to reduce pest populations to an acceptable level in a cost-effective, environmentally rational manner. The below referenced program will be implemented by DGS grounds keeping staff or service suppliers for whenever the occasion occurs.

3.3.1 Monitoring and Evaluation

Regular monitoring to assess pest level, extent, location and stage in life cycle is important. Assessment relative to established tolerances is necessary.

Time

DGS staff will have appropriate time to allow for monitoring and record keeping. The same primary individual will be assigned and responsible for monitoring each time for specific areas. Monitoring cross training and/or back-up of supporting staff to be provided individual with primary responsibility for monitoring.

Training

DGS staff will have ongoing training opportunities as they become available in pest monitoring, identification of key plants (those that regularly have pest problems) and key pests (those that are frequently a problem), along with general biological landscape maintenance techniques.

Record-Keeping

Effectiveness of the IPM practices used should be measured, records kept and an evaluation process conducted in order to regularly assess how well it is working to bring about the desired result(s).

DGS staff will keep and maintain an organized set of records.

Regular reports will be provided to the Building and Property Management manager.

3.3.2 Non-chemical Controls

Cultural, physical or biological controls should be implemented to reduce conditions that favor pest development. Chemical controls should be considered only as a last resort.

Cultural Controls

Cultural control measures may prevent pests from developing. Practices that promote or enhance desirable vegetation to compete as a natural barrier may otherwise reduce pest populations.

Cultural controls include but are not limited to the following:

- Properly designed and operating irrigation system. Check routinely for proper function and effectiveness.
- Replace key plants with resistant species suited for the location (e.g., right-plant, right-place) while increasing species diversity.

Physical or Mechanical Controls

Physical or mechanical controls use physical practices and/or mechanical equipment such as hand removal, baits, traps, barriers, mowers, brush cutters, flame or hot water weeders, blades, hoes, string trimmers, or other physical means to control pests (including undesirable vegetation).

Do the following:

- Prune plants to remove pests and increase light penetration and air circulation. This type of action reduces incidence of plant disease.
- Manage weeds with mulch, physical removal, heat (e.g., flame or infrared weeders). This action reduces weed growth and possible infestation.
- Maintain healthy turf with proper fertilization, aeration, dethatching, grass cycling and overseeding as necessary.
- Proper sanitation must include proper cleaning of mowing and aeration equipment whenever moving from site to site and sterilization of pruning tools as needed.
- Proper equipment maintenance (e.g., maintaining sharp mower blades and pruning shears)

Biological Controls

Biological controls use insects, animals, birds, diseases or competing vegetation to manage pests (including undesirable vegetation).

Appropriate permits should be obtained from DPR, CDFA, the United States Department of Agriculture (USDA), EPA or applicable agency before any action. Local noxious weed control boards should be notified of any biological control releases for noxious weed control.

Do the following:

- Choose control practices for pest and biocontrol situation that is most likely to succeed
- Identify biocontrol suppliers and delivery routes to ensure maximum viability.
- Install insectary plants when and where practical/possible.
- Inspect biocontrol agents on arrival and apply as soon as possible following release instructions and properly store if necessary. Calculate introduction rates and delivery times.
- Monitor pests and beneficial insects to evaluate progress of biocontrol agents and effectiveness.
- Correct imbalances as necessary with cultural or environmental controls, or supplemental compatible pesticides to reduce pests.
- Adjust your expectations to what is tolerable and be patient with the slower response.

3.3.3 Chemical Controls

Chemical controls use chemical agents registered as pesticides by the California Department of Pesticide Regulation (DPR) and the California Department of Food and Agriculture (CDFA).

Chemicals are to be considered only as a last resort.

Before using chemicals, you must:

- determine tolerance thresholds
- obtain pesticide application records
- provide notice of pesticide use

Determine Tolerance Thresholds

Tolerance thresholds of the infestation determine the urgency and strength of the pest control measure. Tolerance thresholds may vary by pest, specific location or type of land use.

Three distinct levels may be identified as subsets of threshold determination:

- Initial injury threshold
- Action threshold
- Damage threshold

Initial injury threshold

The level at which some injury begins to occur or is noticeable.

Action threshold

The level at which action must be taken to prevent a pest population at a specific site from reaching the aesthetic, functional or economic.

Damage threshold

The level where unacceptable damage begins to occur. In most environments certain levels of pest presence or injury can be accepted. IPM practitioners keep careful track of pests after the injury threshold is crossed so the pests do not get to the point where they can cause enough damage impact the purpose of the landscape or facility being maintained. When the predetermined action threshold is crossed; interventions are implemented so as to avoid reaching the damage threshold.

Note: There are situations where the threshold level for pests must be set near or at zero.

Laws and regulations set the population threshold level at zero for Class A noxious weed species due to potential for economic injury, public health or environmental impact. Road shoulders immediately adjacent to the pavement are areas where weed tolerance is low due to public safety requirements and potential for significant economic losses should the paved roadway surface be compromised.

Safety and infrastructure protection also factor into the determination of very low or zero thresholds for weeds in areas such as electrical substations and propane tank storage yards.

Obtain Pesticide Application Records

Pesticide application records are required by the DPR or CDFA and include, but not limited to:

- licensed applicator's name
- application target or site
- chemical name
- brand name
- area of application
- concentrations used
- amount and rate of application
- coverage rate
- equipment used
- weather conditions including temperature and wind
- date and time intervals of application.

Provide Notice of Pesticide Use

The Pest Management Lead Person is responsible for notifying either the on-site Building Manager or directly notifying all tenants and employees that a pesticide application will be applied.

The Notice of Pesticide Use for building occupants must be posted at least 72 hours prior to, but not less than 24 (notice in accordance with all labor bargaining agreements) hours prior to and following application.

The notification must identify the date, time, and locations where the pesticide will be applied. The notification must also inform the building occupants that the Pest Management Lead Person maintains all product labels and `Material Data Safety Sheets (MSDS) of each pesticide used in the building and surrounding grounds and that the information can be made available for review upon request.

Emergency Applications of Pesticides

An emergency application of pesticides without proper notification can be performed, but prior to performing the application the following steps must be taken:

1. The Pest Management Lead Person must be contacted before an application is made.
2. The Pest Management Lead Person will gather MSDS and label information of products being used and submit them to the ESHOP unit for review and guidance.
3. After obtaining guidance from the ESHOP unit, the Pest Management Lead Person will contact the tenant’s Support Services Office to discuss any issues and requirements before the application is made.
4. After all parties have been informed of the emergency and have affirmed the products and method of the application, the application can be performed.

3.3.4 Recordkeeping, Reporting and Revision

Application of specific IPM strategies as well as the IPM program as a whole should be reviewed regularly and revisions made as appropriate based upon experience.

Recordkeeping and reporting will help guide DGS staff to implement a successful reduced-risk pest management strategy.

Record Keeping

The Pest Management Lead Person must document site or pest-specific observations that may include results of IPM practices used.

Monitoring records are key tools for evaluating management strategies to allow assessment and revision as needed. Revisions should be documented.

Site- or pest-specific management plans. Identify the use of reduced risk management practices and biocontrols.

Records of documented pests, including date, specific location, name, reference used for identification and/or corroborating expert (if appropriate), stage of life cycle, extent of pest presence and other pertinent information. Identify types, quantities and the cause of pest problems.

Practices performed to minimize pest populations and enhance healthy plant growth.

Control practices employed per the IPM strategy selected, including dates, location and other pertinent information. This would include historical data identifying types and quantities of pesticides or chemicals that may have been used by the contractor, and the types of pest problems throughout the Complex.

Reports

Provide regular reports as required by the Building and Property Management office. Reports to include financial data necessary to track the cost of maintaining the IPM and biological landscape maintenance program.

There are two types of reports that should be generated and reviewed:
- Manager IPM Reports.
- Pest Management Contractor Reports.

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Reports, Continued

Manager IPM Reports

When an IPM program is first being implemented, managers who receive IPM Guidance Sheets should file brief reports on their efforts to implement IPM. Reports should be filed with the Pest Management Lead Person at least twice per year for the first year IPM is implemented. The goal of the reports is to help the Pest Management Lead Person and Contractor assess: compliance with IPM, program effectiveness, and to identify barriers to IPM.

Pest Management Contractor Reports

Pest Management Contractors should file the following reports to the Pest Management Lead Person:

- Action Plan - At the beginning of each contract period, the Pest Management Contractor should provide the Pest Management Lead Person with an action plan for the building. This report should include any recommendations on changes that Building Management staff and tenants need to make.
- Activity Report - Pest Management Contractors should provide the Pest Management Lead Person with periodic reports of his or her activities. Activity reports should also contain further recommendations, and note where earlier recommendations have not been implemented. A sample Activity Report Form is included in this kit. Pest Management Contractors may have their Activity Report Forms which are acceptable.
- Monitoring Reports - If your pest management contract calls for monitoring to be done, the Pest Management Lead Person should receive copies of monitoring reports. Many Pest Management Contractors have their own monitoring report forms.

Revision

A team consisting of the Grounds Staff, Building Managers, and Building and Property Management office support will be responsible for reviewing and monitoring routine IPM and biological landscape maintenance work and to regularly assess the effectiveness of routine IPM and biological landscape maintenance work and the effectiveness of said programs.

Recommendations from the pest management contractor and manager reports should be compared in order to assess compliance and identify problems.

3.4 Pesticide Planning and Use

Introduction

The Pest Management Lead Person must help plan any use of pesticides, taking into account:

- Sensitive populations
- Application considerations
- Pesticide choice, storage, application, and cleanup
- RFP and contract provisions.

Sensitive Populations

Certain groups of people are more sensitive of chemicals than general population. It is recommended to limit the use of chemicals in buildings which are heavily populated by potentially sensitive people such as children and the elderly.

Children

Buildings which house daycare facilities should take the following into consideration when creating a contract for pest management because:

- Children are likely to be exposed to a greater amount of pesticide because they are closer to where the pesticides are likely to be applied.
- Children exhibit more hand to mouth motion than do adults
- Children breathe more in proportion to their body weight so are exposed in higher concentrations of chemicals.

Elderly

Elderly are more susceptible to the effects of pesticides because of their advanced age for the following reasons.

- Age leaves people with a compromised defense mechanism
- They may have medical conditions which may leave them more susceptible to chemicals
- They may be taking medications which could interact with the chemical

Low risk pesticides should be considered if these segments of the populations either occupy or live near the building(s).

Application Consideration

When applying pesticides, the primary considerations are:

- Timing
- Sites
- Ventilation

Timing

Timing with pesticides can have a significant impact on the building occupants. The greater the period of time between when the application is made and when the area is occupied, the lower the potential for exposure. Pesticide application should be applied on State holidays or on Saturday mornings when possible.

Sites

At sites where pesticides are being applied, use of volatile products in occupied rooms should be avoided where possible. The activities of the building occupants should be considered when choosing the type of application to be applied.

Ventilation

Ventilation is important when a volatile pesticide is being used.

Choosing Pesticides

When choosing pesticides, minimizing risk should be a primary consideration, along with effectiveness, convenience and cost.

Risk depends upon hazard (toxicity) and exposure. A measure of hazard to humans and other mammals is provided by signal words on pesticide labels. The most toxic are labeled DANGER, followed by WARNING. The least toxic are labeled CAUTION. Other potential hazards include carcinogens (cancer-causing substances) or reproductive or developmental toxins. These criteria are not identified on pesticide labels. Risk occurs when humans, wildlife or other non-target organisms are exposed, or come into contact with, hazardous substances.

The least-risk options to use to manage pests and include the following choices. Note that least-risk pesticides should be used only after a pest problem has been accurately diagnosed and as a last resort, when non-chemical options are not effective

1. Biological, cultural, mechanical or physical pest management options with no potential physical hazards; or
2. Pesticides with very low mammalian toxicity via oral, inhalation or dermal routes, no eye effects, mild or slight skin effects (= EPA Toxicity Category IV); or

Choosing Pesticides, Continued

3. EPA Toxicity Category III pesticides in ready-to-use, non-volatile formulations used in areas inaccessible to children and the general public; or
4. EPA Toxicity Category III rodenticides in bait-block, non-volatile formulations placed in tamper-proof bait stations in areas inaccessible to children and the general public; or
5. Pesticides exempt from registration by the US EPA (under 40 CFR 152.25).
6. Any product should be effective for the use indicated on the product label, if applied according to the instructions provided.
7. Options not qualifying as "high risk" as defined below.

Moderate-risk Options

Moderate-risk options carry greater risk. These are pesticides rated low mammalian toxicity by US EPA (Toxicity Category III, “Caution” signal word) and not meeting the criteria for least-risk. Work towards finding alternatives to these pesticides.

High-risk Options

High-risk pest options should not be used. These include pesticides with high or moderate toxicity (= EPA Toxicity Category I or II, “Danger” or “Warning” signal words); those containing ingredients included on US EPA's List 1: Inerts of Toxicological Concern; those identified as known, likely or probable carcinogens by US EPA or the state of California; those identified as reproductive or developmental toxins by the state of California (Proposition 65 list); cholinesterase inhibitors (nerve toxins); or those on the state of Illinois EPA List of Known Endocrine Disrupters.

Other high-risk options are those products or uses presenting a physical hazard, such as dusts and powders that may be inhaled, or snap traps placed in an area accessible to children. Pesticides used outdoors should not be known groundwater contaminants (as designated by the state of California). Finally, pesticides with label precautionary statements including "toxic" or "extremely toxic" to bees, birds, fish or wildlife; specific warnings regarding ground or surface water contamination; or known harmful to beneficials should not be used in environments where those hazards are present. This last restriction may not apply to pesticides used per label instructions to control bird, fish, wildlife or stinging insect pests.

Note: Many pesticides contain more than one active ingredient. Also, different formulations of the same pesticide can have different levels of risk; a ready-to-use liquid is less risky to store and handle than a concentrated dust or powder. The way a pesticide is used also affects the level of risk by impacting the potential for exposure. For example, a crack and crevice treatment inaccessible to children or rodent poison in a tamper-proof bait station is less hazardous than a spray applied to exposed surfaces.

Storing Pesticides

Storage areas should be carefully surveyed. Spills are very likely where containers are handled. Practice good storage habits, such as:

- Provide secondary containment. Store pesticides in an area that will keep any spilled material in a bermed or enclosed area with a concrete floor and no drain until clean up can occur. High-sided plastic containers offer at least interim protection, depending on the product being stored.
- Store pesticides in their original containers.
- Keep pesticides out of the reach of children, pets, and livestock.
- Store liquids on the bottom shelf.
- Do not store bagged material below liquids.
- Separate insecticides, herbicides, etc.
- Inspect containers periodically for leaks and spills.
- Determine whether stored products can withstand freezing and store appropriately.
- Rotate stock; use the oldest first.
- Provide adequate ventilation.
- Store Personal Protective Equipment in a separate location.

Mixing and Loading Pesticides

Pesticides can be spilled during mixing and loading. If spilled on the ground, they can eventually contaminate groundwater. If spilled on a paved area, they can eventually wash into floor or storm drains. Use the following guidelines when mixing and loading pesticides:

- Read the label thoroughly before mixing and follow all directions carefully. Handle pesticide concentrates carefully to avoid accidental spills and personal harm.
- Because the applicator is handling concentrated product, this is the most dangerous phase of pesticide use. Be sure to wear all Personal Protective Equipment (PPE) required by the label.
- Measure accurately. It is illegal to mix pesticides at rates higher than those listed on the label.
- Calculate the area to be treated and the amount of material needed carefully. Calibrate equipment accurately. Mix only the amount needed.
- Avoid contaminating water supplies by avoiding back-siphoning while adding water to tanks.
- Triple-rinse containers immediately upon emptying. Pour reinstate into application tank to use in subsequent treatments. Make sure containers are appropriately marked or labeled.

Applying Pesticides

When mixing and applying pesticides, all label precautions must be followed. It is a violation of federal and state laws to disregard label directions.

- Spot treat only the area or pest where the problem occurs, following the selected IPM strategy. Avoid broadcast application.

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Applying Pesticides, Continued

- Follow label directions for PPE and for weather and other conditions appropriate for treatment. Do not spray or otherwise treat if it is too windy (> 5 mph) or too wet. The pesticide should reach only the intended target.
- Leave no-spray buffer strips near surface waters.
- Be prepared for spills. Have clean-up materials available for immediate use.
- Keep people and animals off of sprayed areas as noted in the label directions.
- Post appropriate signage at applied areas, following WSDA regulations.

Cleaning Up

Cleaning of pesticide application tools presents another significant opportunity for spills or other contamination incidents. Caution should be exercised:

- Clean equipment after each use unless it will be used for the same chemical the next time.
- Rinse equipment thoroughly -- triple rinsing is the standard. If reinstate is used in further applications, it must be applied according to label directions and the selected IPM strategy.

For specific guidelines on acceptable cleaning products, see section 6.4 of the Purchasing chapter of this manual.

Disposing of Pesticides

Containers, equipment and unused, surplus or waste pesticide product must be disposed of in ways that protect public safety and the environment.

- Properly dispose of empty containers. Triple-rinsed plastic containers should be recycled through the Plastic Pesticide Container Collection Program run by the California Integrated Waste Management Board (916) 255-2200 and the Department of Pesticide Regulation (916) 445-4300. Thoroughly emptied bags and triple-rinsed liquid containers that cannot be recycled can usually be disposed of at a solid waste facility; follow label directions and advice of the appropriate solid waste characterization or screening program.
- Rotate stock of chemicals so the oldest is used first; thus reducing the need to dispose of outdated chemicals.
- Some pesticides are ineffective if stored at freezing temperatures; read the labels and store appropriately to avoid having to dispose of frozen products.
- Surplus pesticide which is still usable and which would meet the conditions of a agency's IPM program (i.e., not banned or restricted, and not surplused because it is found to be too hazardous, toxic, mobile or other detrimental reason) may be referred to the California Materials Exchange ("CALMAX" operated by the CIWMB at 916 255-2200 to find an appropriate user.

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Disposing of Pesticides, Continued

- Unusable, waste pesticide must be disposed legally, usually as a hazardous waste. Follow all applicable laws and regulations, using a licensed hauler and permitted treatment, storage and disposal facility if required. The California Department of Pesticide Regulation and the CIWMB offer Waste Disposal Programs where a public agency's unusable pesticides might be able to be disposed at no cost. Regional events are held around the state as funding allows.

RFP and Contract Provisions

Contracts and RFPs must be specific in order to ensure that bidders are qualified. A two part bid submission will provide a listing of best qualified bidders. The first part would require the bidders to submit their qualifications. The second part of the bidder's submission would require the bidders to submit their unit costs.

Necessary Elements of Pest Management Contracts

Listed below is a list of elements that should be specified in all pest management contracts, however, site specific items should also be included.

- A copy of the contractor's current Applicator's Licenses and a list of continued educational training
- A copy of General Liability insurance certificates
- At least (3) references from clients who occupy buildings similar to the building or site which is being contracted
- A clearly-stated scenario about how pest problems will be solved, including pest inspections and identification

Recommended Elements of Pest Management Contracts

Elements that should be included in pest management contracts include:

- Monitoring
- Consulting

Monitoring involves using insect and/or rodent traps to identify locations and extent of pest populations. Consider either intensive monitoring or using "monitoring windows."

- Intensive monitoring may be most beneficial in the early stages of an IPM program, or be applied primarily in certain problem areas of a building such as food service areas.
- Monitoring windows can also be established periodically throughout a year. For example, a three week long, intensive monitoring period every six months is better than no monitoring at all.

Consulting can include specifying that the pest management contractor take on the important role of advising on how to avoid and reduce pest problems. The pest management contractor should be available to train personnel, review design plans, etc. Because it may difficult to predict the frequency of these events, it might be appropriate to establish an hourly fee.

3.5 Guidance

The following sections provide pest management guidance for specific BPM job duties.

3.5.1 Building Manager and Pest Management Lead Person

Roles

For each building, an in-house building management staff person should be designated as the Pest Management Lead Person. The Pest Management Lead Person is responsible for all activities related to pest management.

The Pest Management Lead Person must:

- Ensure that the Pest Management Contractor understands and practices IPM concepts, by adding provisions in the RFPs and Contracts.
- Ensure that other individuals who occupy, manage and service the building(s) take measures to prevent and help alleviate, rather than aggravate, pest problems.
- Receive pest management reports and make them available.
- Notify building occupants prior to applying a chemical. Notification must meet Memorandum of Understanding (MOUs).
- Keep records for LEED-EB documentation requirements.

RFP and Contract Provisions

Contracts and RFPs must be specific in order to ensure that bidders are qualified.

Contractors must attend a “walk-through” of the building(s) prior to bidding on a contract for that building. This helps ensure that they know what is going to be required, and lessens the chance that they’ll cut corners later on.

Necessary elements of pest management contracts

Below is a list of elements that should be specified in all pest management contracts. It is not intended to be all inclusive.

- Evidence of applicator licensure (upon awarding the contract) & continuing training.
- Copy of general liability insurance certificates.
- At least three references from similar buildings serviced by that company.

Pest solution scenario

The strategy for solving pest problems should be as follows:

- Inspection – the premises should be inspected before controls are applied.

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RFP and Contract Provisions, Continued

- Identification – The pest species, the pest damage, or potential for pest infestation needs to be correctly identified.
- Extent of problem – The extent of the pest problem must be determined.
- Management – A specific management strategy should be detailed. Four essential elements which should be addressed in the management strategy are:
  - Sanitation
  - Physical Exclusion
  - Mechanical Controls
  - Application of Pesticides
- Recommendations – The pest management contractor should make recommendations to the Pest Management Lead Person.
- Evaluation – Results should be evaluated. If the results are not satisfactory, revise and reapply the management strategy.
- Training (optional) – contracts and RFPs should specify that the pest management contractor will be available for training of BPM staff and tenants.

Recommended Elements of Pest Management Contracts

The recommended elements of pest management contracts are monitoring and consulting

Monitoring involves using insect and/or rodent traps to identify locations and extent of pest populations. Monitoring plans can be tailored to the needs and resources of different buildings. For example:

- Intensive monitoring may be most beneficial in the early stages of an IPM program, or be applied primarily in certain problem areas of a building such as food service areas.
- "Monitoring windows" can also be established periodically throughout a year. For example, a three week long, intensive monitoring period every six months is better than no monitoring at all.
- It may be possible to have Pest Management Contractors train Building Management staff to conduct monitoring and record results. The Pest Management Contractor is then provided with the results.
- The extent of monitoring activities should be addressed in detail in the RFP or contract. If it is not, then the bids you receive may not be for comparable degrees of service. One approach is to list monitoring as a separate cost item. This then allows you to list several possible monitoring schemes and receive bids for each one.

Consulting involves an ongoing relationship with the contractor for services that go beyond pest extermination:

- Pest management contracts should contain a clause that the contractor will be available to train personnel, review design plans, etc. Training can appear as a separate item on the bid specifications. Some bidders may include this as a part of regular service, at no extra cost.

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RFP and Contract Provisions, Continued

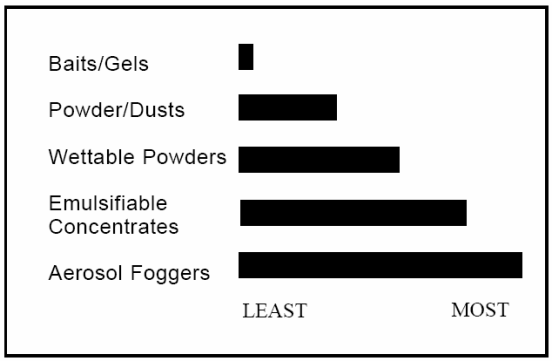
- The Pest Management Supervisor should receive periodic, written recommendations from the pest management contractor detailing conditions in the building which contribute to pest problems. The Pest Management Supervisor should take steps to inform the proper individuals, and then make sure the recommendations are addressed.

Control of Exposure

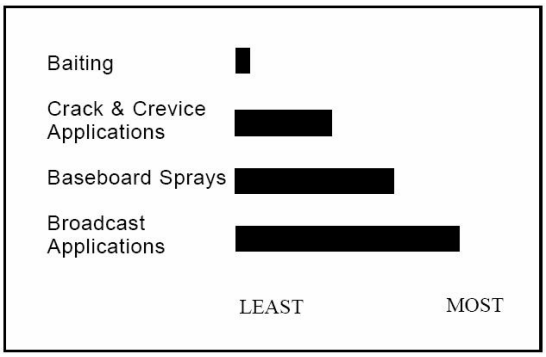
Exposure occurs via three main routes: inhalation, dermal exposure, and ingestion.

Inhalation is the most important route of exposure in indoor pesticide use. The two primary factors involving inhalation exposure are the volatility of the product (including inert solvents) and the amount of chemical which is applied.

Product formulations are generally the best predictor of how well a pesticide, or a solvent contained in it, will enter the air:



Use-pattern is often the best predictor of the amount of chemical which is ultimately applied:



Sensitive Populations

Limit pesticide use in buildings, or areas of buildings, heavily frequented by potentially sensitive populations. Sensitive populations may include the following:

- Children
- Elderly

Children

When pesticides are used in a building, children are likely to be exposed to a greater amount of pesticide in the same building. Children are physically closer to areas where pesticides are likely to be applied, and exhibit more hand to mouth action than adults. They also breathe more in proportion to their body weight than adults. Children exposed to the same concentration of a chemical in the air as an adult, will receive proportionally larger amounts of the chemical in relation to their body weight. Physiological differences, such as developing metabolic systems, may also make children more susceptible to the effects of chemicals.

Elderly

Elderly persons may also be more susceptible to the effects of pesticides. Physiologically, elderly persons may be more sensitive to chemicals because of the following:

- Advanced age often leaves persons with compromised defense mechanisms.
- They are more likely to have medical conditions which may leave them with more susceptible to chemicals.
- They are more likely to be taking medications which could interact with pesticides.

Application Considera-tions

When using pesticides, the primary considerations are:

- Timing
- Sites
- Ventilation

Timing

Timing with pesticides can have a significant impact on the building occupants. The greater the period of time between when the application is made and when the area is occupied, the lower the potential for exposure. Pesticide application should be applied on State holidays or on Saturday mornings when possible.

Some types of pesticides do not present significant potential for exposure even while they are being applied. This is generally true for all baits.

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Application Considera-tions, Continued

Sites

Where a pesticide is used, in relation to the activities of the building occupant, is also a factor which affects exposure.

The use of volatile products in occupied rooms should be avoided where possible.

Also, the activities of building occupants should be considered when choosing the type of application to make. For example, the use of a residual baseboard spray in an office setting is of less concern than it would be in a preschool classroom with crawling toddlers.

Ventilation

Ventilation is important when a volatile pesticide is being used. When ventilation is required, it will be clearly marked on the label

3.5.2 Recycling

Introduction

Problems with insects or rodents are often due to conditions in and around buildings that provide pests with access to food, water or harborage into buildings.

Conditions around buildings are usually beyond the control of the pest management contractor, and are in the hands of other individuals who manage and occupy the building.

Below are some key concepts which managers in charge of recycling activities should understand and practice.

Key Concepts

Food and drink residues left on recyclable help support insects and rodents.

For example, cans, bottles, and styrene plates should be washed off thoroughly before being put into recycling bins. Excess wash water should be shaken off items before they are put into bins.

If it is not feasible to rinse recyclables, then they should be stored in containers with tight fitting lids. The containers should be emptied as often as possible.

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Key Concepts, Continued

Food and drink residues remaining on the interior of recycling bins can also support insects and rodents. Bins used to store food and beverage containers should be lined with garbage bags. Plastic bags are better than paper. However, they may not be consistent with recycling policies. Paper bags are better than no bag. Bags should be removed EACH time the bin is emptied.

Wherever possible, storage bins should be equipped with tight fitting lids to keep rodents and insects out. Lids which close automatically, such as foot pedal-type, will help ensure that the lid is always on.

Lids may not always keep insects out and it will be difficult to keep all food and water out of recycling bins. Teflon spray coatings are available and marketed to be sprayed on vertical surfaces to keep insects from crawling up them (they slip off!). Consider using one of these products on recycling bins.

Bins should be cleaned as necessary with detergent and hot water. Enclosed can crusher/bottle shredding machines should be opened and cleaned on a scheduled basis.

Harborage

Stored newspapers, paper bags, cardboard, or other bulk materials may provide hiding and breeding areas for pests. If these types of materials are to be collected for recycling, try to store them away from potential sources of food, such as employee dining areas or where beverage container and styrene recycling bins are kept. The closer together food and harborage sources are, the easier life is for pests.

All recyclables should be picked up as frequently as possible. This keeps pests from being able to rely on a steady source of harborage or breeding area. Constant disruption of pest habitats helps to keep populations from becoming established.

General

Recycling patrons should be educated on proper recycling protocols. Provide them with guidelines/rules on how their recycling habits can encourage or discourage pest problems. It should be explained why it is important to follow these rules. Many people don’t make the connection between recycling and pests.

If you have a recycling area where patrons are consistently untidy, or do not rinse recyclables, you may want to consider moving recycling away from that area. The pest management contractor for that building should be able to give you an idea how much a particular area contributes to pest problems.

3.5.3 Waste Disposal

Type of Container

Disposal contracts should clearly stipulate the type of container to be provided. The type of container should be appropriate for the intended purpose. For example, containers used for disposal of food waste should be sealed and sized appropriately for the amount of waste generated.

Most dumpsters have a drainage hole which is large enough for rats and mice to enter through. Contracts should stipulate that all dumpsters be fitted with drain hole plugs, and that they be kept in place whenever the dumpster is not being drained.

Cleaning of Dumpsters

Disposal contracts must require that dumpsters be cleaned and sanitized regularly. The frequency of cleaning will depend on the type of materials stored in the dumpster and the season.

Food residue and debris should not be allowed to accumulate on the inside of dumpsters. Left uncleaned, dumpsters can become a constant source of food for rodents and insects

Pickup Frequency

Overflowing trash cans provide both food and harborage for rodents.

Contracts should stipulate that containers be picked up frequently enough to deal with the quantity of waste generated. Containers should be picked up often enough that waste does not overflow, and lids can always be fully closed.

Contracts should stipulate that rubbish spilled during the pickup process should be cleaned up immediately.

Practices

Most pests are nocturnal and will feed at night. Outdoor public/employee trash cans should not be left overnight without a tight fitting lid in place. Preferably these containers should be equipped with self-closing, swing-type lids.

Where possible, it is best to keep trash receptacles elevated off the ground to help prevent rodents from getting into them. Stored trash cans can be kept on racks. Some types of public/employee trash cans are designed to be attached to poles.

Dumpsters should be placed on properly grade, intact concrete, asphalt or gravel pads. This helps prevent rats from establishing burrows beneath them.

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Practices, Continued

Potential sources of food and harborage should be kept as far from each other as possible in order to make life more difficult for rodents. Dumpsters and trash containing food wastes should not be placed close to areas of dense shrubbery and overgrowth, or where lumber or other materials are stored.

Areas around dumpsters and trash receptacles should be free of leaves, weeds and debris which might provide harborage to rodents. Nearby areas, especially along fences, benches, and walls, should also be clear.

To the extent possible, dumpsters and trash receptacles should be placed away from buildings (particularly doors and windows). This will help to keep insects and rodents from entering buildings.

If a fence surrounds a trash storage area or dumpster, there should be a minimum clearance of 12” from the bottom of the fence to the ground. This should keep leaves and other debris from accumulating and providing sheltered runways for rodents.

Rodents will often gnaw through plastic trash receptacles to reach food. Metal trash receptacles are preferable. Metal disks installed in the bottoms of plastic cans can also help.

3.5.4 Custodial Services

Introduction

Custodians are probably more familiar with the buildings they maintain than anyone else who works in that building. Custodians are the employees most likely to see pests or evidence of pests, and the employees most likely to be blamed if a tenant sees pests.

Any indications of pest problems must be reported to the Pest Management Lead Person, who should then tell the pest management contractor. The Pest Management Lead Person must keep a log of reported problems.

Custodians should receive specific recommendations from the Pest Management Lead Person on actions they can take to reduce pest problems.

Reducing Sources of Food

Most pests are nocturnal and will take advantage of any food waste left sitting overnight. Trash receptacles should be emptied later in the day after building occupants have had lunch and coffee break. Food, even crumbs, left overnight in trash containers will help feed insect and rodent populations.

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Reducing Sources of Food, Continued

If liners or bags are used in receptacles, they should be replaced each time the receptacle is emptied.

If trash must be stored, keep it in a single area of a building. The area should be in a room closed off from the rest of the building and should be cleaned frequently and thoroughly.

Keep trash in cans with lids. Keeping pests out of dumpsters will keep them away from a food source. Dumpster lids should be kept closed and dumpsters should never be filled so high that the lids can't be shut. If the lid is broken, or the dumpster full, the person responsible for the dumpster pickup should be contacted immediately.

Areas where food is eaten, such at desks or in conference rooms, should be vacuumed periodically. Small crumbs can accumulate in areas where push brooms can't access, such as behind filing cabinets, desk legs, etc.

Outdoor trash receptacles and dumpsters should be kept as far away from building entrances as possible. This decreases the possibility of insects and rodents getting into buildings.

Reducing Sources of Water

Make it standard practice to store mops, sponges, etc. in a manner which will allow them to dry as quickly as possible.

Wet cleaning tools should be wrung out as much as possible prior to storage. A wet mop left standing in a bucket can provide several days worth of water for insects or rodents. Insects and rodents (particularly rats) are drawn to moist areas and standing water. Clogged drains, leaking pipes, and dripping faucets should be reported and fixed.

Some water coolers have overflow basins. These should be emptied and cleaned as frequently as necessary - daily if necessary.

Reducing Access and Harborage

Broken windows, or holes in exterior walls or doors, should be fixed as soon as possible. A mouse can fit through a hole as small as 1/4" in diameter.

Doors should not be left propped open, particularly near kitchen areas or near dumpsters.

Boxes, paper supplies, and other materials should not be stored in the same areas in which food or trash is stored. Storing materials with food or trash puts food and shelter in the same place, making life easy for pests.

Try not to order more goods than you need. Boxes stored for long periods of time offer good refuge and nesting areas for both insects and rodents.

3.5.5 Landscape Design

Introduction

Landscape design is particularly important in IPM because there are many elements in a landscape which may influence pest problems, both indoors and out.

Planning ahead can help avoid creating settings which attract and support insects and rodents.

Choosing Vegetation

Native vegetation and vegetation from similar climates are often naturally resistant to local insects and diseases.

Check with your local Cooperative Extension Service (affiliated with the State University) for information on species and varieties of plants, shrubbery, trees, and grasses which are best suited to your area.

Plants that shed a minimum of seeds & fruits are preferable, since seeds and fruit may attract and support insects, rodents, and undesired birds.

Vegetation should not be planted directly against buildings as it provides shelter and sheltered runways for rodents. For the same reasons, avoid planting dense vegetation that completely covers the ground.

Trees and bushes which produce branches close to the ground (such as some spruce species) may provide shelter for rodents. Ideally, all trees and shrubbery should have a minimum of 12” of clear area between the ground and foliage.

Vines which climb building walls, such as ivies, create runways for rodents, as well as harborage for undesirable bird species. If climbing vines must be used, it is preferable that they are trained to climb trellises. The trellises should be suspended away from the building, to make it more difficult to climb or build nests.

Trees which grow close to buildings or overhang roofs may provide pathways for insects and rodents to gain access to buildings. Trees should be planted away from buildings, or overhanging branches should be trimmed.

Consideration should be given to the placement of trees that shed leaves. Leaves which accumulate along foundations, retaining walls and fences may not always be removed promptly. Accumulated leaves provide harborage and sheltered runways for rodents.

General Design Considera-tions

A reliable pest management technician should review and offer advice on landscape designs before they are implemented.

Avoid providing rodent harborage and runways

In planters and planting areas, consider installing heavy gauge galvanized screening several inches below the soil surface in order to discourage rodent burrowing. Openings should not be greater than 1/4".

If concrete or asphalt abuts walls, it is important to insure that it be constructed without gaps between the pavement and structure. Rats and mice frequently like to burrow and nest in openings of this sort.

Rodents prefer to travel along walls and fences. All fences, except those around garbage storage areas, should have a 6-8" space between the bottom of the fence and the ground. This avoids creating sheltered runways for rodents, and prevents the accumulation of leaves and debris which also provide shelter.

Sheet metal can be attached to posts and corners of storage enclosures to help prevent rodents from climbing. Along walls and pathways, consider installing a 2' wide by 6" deep border of pea stone or ornamental gravel. This discourages rodents from burrowing.

Avoid creating situations which attract and support pests

The closer sources of food, water and harborage are together, the easier life is for rodents and insects. Site potential sources of pest food, water and harborage as far away from each other as possible.

Ground covers such as bark and wood chips are often put down to hold moisture and make an area pleasing. Unfortunately these materials readily trap and hold water, creating the perfect living and breeding conditions for many species of insects. Such materials are also ideal for rodents to burrow in. Avoid using these types of ground covers, particularly in close proximity to buildings. Where ground cover is needed, consider decorative gravel. It drains readily and is difficult for rodents to burrow in.

Pests, particularly rats, need a source of water. Soil/pavement adjacent to buildings and retaining walls should be graded away from buildings. Design grounds so that water does not pool for any period of time. Drainage should be adequate to account for roof and pavement runoff, sprinkler systems, and down spouts.

Lighting Design

Outdoor lighting often attracts insects. These insects may become pests themselves by entering the building, or by becoming a source of food for rodents. The type and placement of lighting can help to reduce insect problems.

Ultraviolet (UV) light from outdoor lighting often attracts flying and crawling insects, which can then find their way into buildings. Different types of lighting vary in the amount of UV light they emit. White incandescent, blue mercury vapor, and fluorescent lighting emit relatively high amounts of UV light and are very attractive to insects. High (or more preferably) low pressure sodium vapor bulbs emit yellow light and are less attractive to insects.

Insects are attracted to sources of light, not where the light is directed. Lighting placed away from buildings, but trained on the buildings, is preferable to attaching lighting units directly to buildings. If lighting must be attached to buildings, place it as far from doorways and windows as possible, particularly frequently used doorways.

Dumpster and Trash Receptacle Design

Make sure that dumpsters and trash cans are stored on concrete or asphalt surfaces, as far from building entrances as feasible. Garbage cans should be stored on racks at least a foot off the ground.

If possible, garbage storage areas should be in a separate shed or enclosed and gated areas. Enclosures should be solid (as opposed to chain-link) and should extend all the way to the ground. Metal or synthetic enclosures are preferable to wood because it is more difficult to climb. Pressure treated wood is preferable to non-treated wood. If wood is used, consider installing sheet metal along the bottom 12” of the enclosure, particularly on corners. This will help prevent rodents from gnawing and climbing the enclosure. It may also be necessary to install a concrete runner under the fence to prevent rodents from burrowing beneath it.

Persons using outdoor seating and eating areas may leave behind food debris. Provide an adequate number of trash receptacles, in these areas. Avoid siting eating and seating areas near areas of dense vegetation which provides harborage for rodents.

Trash receptacles should have self-closing lids. Metal receptacles are preferable because they are more difficult for rodents to climb or chew through. If receptacles are of an open design such as those constructed of wire mesh, make sure that openings are less than 1/4” in diameter. Where possible, it is best to keep trash receptacles elevated off the ground to help prevent rodents from getting into them. Stored trash cans can be kept on racks. Some types of public/employee trash cans are designed to be attached to metal poles which rodents cannot climb.

3.5.6 Landscape Maintenance

Food

Seeds and fruit from trees and bushes can provide food for insects and rodents. Fallen seeds and fruit should be picked up and disposed of promptly.

People using outdoor benches and dining areas are likely to leave food debris behind. Provide an adequate number of trash receptacles in these areas. Pay particular attention to upkeep of weeds and other vegetation in these areas, which might provide rodent harborage.

Outdoor trash receptacles should have self closing lids. Metal receptacles are preferable to plastic because rodents cannot chew through them. If receptacles are of an open design, such as those constructed of wire mesh, make sure that openings are less than 1/4” in diameter. It is best to elevate wire receptacles off the ground in order to prevent rodents from climbing them. Many are designed to be attached to a metal post which rodents cannot climb.

Water

Pests, particularly rats, need a source of water. Areas of soil and pavement directly adjacent to buildings and retaining walls should be graded away from buildings. Water should not pool for any period of time anywhere on building grounds.

Access and Harborage

Rodents like to travel along walls, fences etc. Keep these areas free from weeds and debris which might provide shelter and hiding areas.

Vegetation planted directly against buildings or walls provides shelter and sheltered runways for rodents. Where possible, trim trees and shrubbery so as to have a minimum clearance of a foot between the ground and foliage.

Vines which climb building walls, such as ivies, create access runways for rodents. They may also serve as nesting for undesirable species of birds. Vines should be removed, or supported by a trellis which is suspended away from the building.

Trees which grow close to buildings, or overhang roofs can provide pathways by which insects and rodents can enter buildings. They should be trimmed away from structures as much as possible.

Leaves and other clutter which may accumulate along foundations provide sheltered runways for rodents and should be removed promptly.

General

Ground covers such as bark and wood chips are often put down to hold moisture and make areas more pleasing. Unfortunately these materials also create perfect living and breeding conditions for many species of insects. They are also ideal for rodents to burrow in. Avoid putting this type of ground cover down, particularly in close proximity to buildings.

Where some sort of mulch material is needed, consider peastone or ornamental gravel. It drains readily and is difficult for rodents to burrow in.

3.5.7 Renovation and Construction Projects

Introduction

For Building Management Staff in charge of renovation and construction projects, participating in an IPM program is a two step approach:

1. Ensure that project related activities do not contribute to conditions which might support or attract pests.
2. Incorporate design and construction techniques meant to help prevent future pest problems.

Considerations During Projects

The pest management contractor for each building should not be someone whose sole function is to apply pesticides. They should be able to provide advice on how to avoid and prevent pest problems. When any renovation or construction project is undertaken, the pest management contractor should be informed, and an inspection, and consultation scheduled. Also, consider having the pest management contractor review blueprints before they are finalized, so they can make suggestions for changes which will complement an IPM program.

Waste that could be attractive to pests must be controlled by general and subcontractor. Potential sources of food and water, such as worker lunch and coffee break debris, should not be left overnight in open dumpsters or trash receptacles. Specifications for construction and renovation projects should require daily removal of rubbish which might contain food.

Building materials and construction debris should be stored for the minimum amount of time feasible. Stored materials such as lumber and scrap building materials can provide harborage for rodents and insects.

Buildings should not be left open for extended periods of time. Open access will allow rodents to enter and infest the building. Openings in buildings, such as unfinished doorways and windows, should be closed tightly at the end of each workday

3.5.8 Building Repair

Introduction

Managers in charge of building repairs and renovations should consider how their projects could be done in ways which would complement and enhance other IPM efforts. An IPM program may sound like additional work for already overburdened personnel. However, minor changes in day to day activities are most of what is required when starting an IPM program. Where larger problems do exist, IPM does not dictate that they have to be fixed immediately. Priorities and long term plans may shift, but budget and personnel constraints remain valid considerations .

Reducing Sources of Water

All pests, particularly rats, need a supply of water in order to survive. Slow or clogged drains, or minor leaks in out-of the way places may not cause any structural damage to a building, but they will help support roach and rodent populations. They should be fixed immediately.

Clogged gutters and drainpipes also provide water to pests. Likewise, water should not be allowed to accumulate in puddles on grounds surrounding buildings. Pay particular attention to areas around sprinkler and drainage systems.

Condensation on pipes and refrigeration units can also supply insects and rodents with water. Where feasible, areas prone to condensation should be insulated. Steam leaks should be repaired.

Reducing Access

Pests can get into buildings through virtually any opening. A mouse can squeeze through a hole as small as a 1/4”.

Any holes from the outside to the inside of a building should be repaired immediately.

Windows, screens and vent covers must be kept intact. Openings in foundations, walls, fascia, etc. must be tightly closed. Pay particular attention to areas where utilities enter and exit buildings.

Doors and windows which do not close completely must be fixed immediately to prevent pests from getting in. This is particularly important in locations close to kitchen and eating areas, and where garbage is stored.

Doors which do not completely seal at the bottom should be fitted with weatherproof “sweeps.”

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Reducing Access, Continued

Automatic door closers should be considered for heavily-used doors that tend to be left open, and for doors that are in close proximity to rooms or outdoor areas where food or trash is present.

When pest management contractors find rodent holes accessing buildings, they often make temporary repairs (often using wire mesh). Make sure you are informed when such repairs are made so you can make permanent repairs.

Reducing Harborage

Warmth is also necessary for pests, especially in breeding areas. Unwrapped heat and hot water pipes should be insulated wherever possible, particularly in tight out-of-the-way places.

Small cracks and crevices within buildings can harbor insects such as cockroaches and allow them to travel throughout a building. Whenever practical and possible, caulk or seal these areas. Potential targets may include gaps around window and door casings, along baseboards, where pipes and utility lines enter and exit rooms, etc. While it may be impossible to seal off every crack and potential runway in a building, every little bit helps. Pay particular attention to areas near kitchens and cafeterias, and where garbage is stored.

Efforts to seal areas of access and harborage can be implemented as separate projects, or be made a standard practice whenever related repairs (such as painting or plumbing repair) are undertaken.

3.5.9 Food Service Operations

Introduction

For staff, managers and contractors involved in food services, participating in an IPM program involves instituting work practices and policies which minimize the availability of food and water to insects and rodents

Garbage

Dumpsters are often a source of food for insects and rodents. They should always be equipped with lids in order to keep rodents out, and to keep the garbage in. Lids should always be closed after loading.

Dumpsters should not be allowed to overflow and should be emptied as needed. The lid should always be able to be closed fully.

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Garbage, Continued

Dumpsters should be kept as far away as practical from building entrances and windows.

Garbage which is not put in dumpsters should be placed in cans with tight fitting lids to keep pests from gaining access to food. Liners will help keep cans free from food debris.

To keep rodents from getting in, garbage cans should be stored in racks at one foot off the ground and should be cleaned periodically with hot water and detergent. Lids should always be in place when not in use.

Rodents can gnaw through plastic, so metal cans are preferable. If plastic cans are to be used, consider installing a metal disk in the bottom of the can.

Storage

A little spillage can feed a large number of cockroaches. Tears or ruptures in sacks or containers of food should be repaired as soon as possible. If damaged items cannot be repaired, the food should be repacked in intact containers.

The longer food and other items are stored, the more likely it is that insects or rodents will get into them. Foodstuffs and potential nesting materials such as paper napkins should be rotated so that the older products are used first.

Avoid storing unnecessary quantities of items.

Store foodstuffs and items such as paper napkins at least 12” off the floor, in tightly sealed containers. This keeps food and nesting materials away from rodents and allows the area beneath shelving to be cleaned periodically.

Avoid storing food or potential nesting materials in cardboard boxes for extended periods of time. Rodents can easily chew through cardboard, and insects find good harborage in the folds of boxes and beneath them. If storage of cardboard boxes cannot be avoided, store boxes with enough space around them to allow for inspection, and to avoid creating pest harborage.

If possible, shelving units should be kept away from walls to allow for inspection and to avoid creating harborage areas. Metal shelves are preferable to wooden ones because they are easier to clean and do not absorb spilled materials.

The farther sources of food are from sources of harborage, the more difficult life is for pests. Non-food items, such as linens, glassware, and dishes should be stored as far from food items as possible.

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Storage, Continued

Insects and rodents are most active at night. Do not leave edible foodstuffs uncovered or exposed overnight. Kitchen items and surfaces should not be left unwashed overnight.

Soiled cloth napkins, aprons, tablecloths, etc. may also provide a food source for insects and rodents. They should be kept in a sealed hamper with a lid, and washed frequently.

Inspections

All food service personnel should be able to identify pests and have some knowledge of their life cycles and habitats.

The Pest Management Contractor who services your building should be available to provide training to all food service personnel.

All incoming shipments of food and goods (particularly produce) should be inspected for signs of insect infestation, damage or contamination. If there is any evidence of pests, the shipment should be refused since even a few insects can quickly become many.

Food storage areas should be inspected for pests at least twice per month. Problems should be reported to the person responsible for pest management in the building.

Pests, particularly rats, need water to survive. Pipes, garbage disposal conduits, drain fittings, ice machines, etc. (including those in out-of-the-way places) should be inspected weekly for leaks. Clogged or slow drains can also provide a source of water and should be cleared ASAP. For the same reason, water should not be left standing in steam tables or sinks when not in use, especially overnight.

Cleaning

Kitchen areas should be kept clean throughout. Dirty dishes, crumbs, sinks, etc. should not be left for extended periods of time, particularly overnight.

Pits below dumb waiters should be checked and cleaned frequently. Food and soiled utensils frequently fall from into these pits providing food for insect and rodents.

Portable items such as food carts and tray racks should be cleaned frequently and kept free of food debris. Steam cleaning is preferable if the items are not susceptible to heat damage.

Other Control Measures

Pests often get into buildings the same way people do.

Doors leading outdoors (especially to dumpsters) from food service areas are one of the main ways rodents find their way indoors.

Doors should be equipped with self-closers and should never be left propped open. Where doors may frequently be propped open for ventilation or other reasons, screen doors should be installed. Damaged screens should be repaired as necessary.

Legs of food and tray carts can be coated with teflon® paint or spray to make it more difficult for insects and rodents to crawl up them. Crevices and openings in carts can be caulked or filled with foam type insulation in order to seal off potential harborage sites to insects. (Note: if the cart contains any electrical implements, be sure to check with the manufacturer before making alterations or cleaning).

Sealing areas of insect and rodent harborage and access can help to reduce problems, particularly in kitchen and dining areas. Alterations might include caulking around counter back splashes, putting screens over exhaust fans and windows, sealing around pipe chases, etc. Contact the person in charge of minor repairs and maintenance of food service areas.

3.5.10 Heating Ventilation and Air Conditioning (HVAC)

Introduction

For Building Management Staff in charge of HVAC systems, participating in an IPM program involves taking measures to reduce sources of water available to pests, and reducing the means of access by which pests enter and travel throughout buildings.

Reducing Sources of Water

Leaks in cooling towers, pipes, etc. should be fixed as soon as possible, no matter how minor. A small trickle of water can support large insect or rodent populations.

Condensation on pipes, or where steam valves open, can also support pests. Pipes should be insulated, and steam valves vented to open areas where moisture will not condense.

Reducing Access

All intake and out-take vents should be screened to prevent insects and rodents from entering buildings.

HVAC components such as piping, ductwork, breaching, etc. provide runways by which insects and rodents can travel throughout buildings.

Use caulk, sheet metal, steel wool, spray foam insulation, and cement to block potential runways where components meet walls, floors, or ceilings.

When blocking access holes or around piping, etc., keep in mind that mice can get through holes as small as 1/4” in diameter. Roaches and ants can get through even smaller openings. Be thorough.

It is most important to seal off runways leading to and from potential sources of food and water such as kitchen areas, cafeterias, bathrooms, etc.

General

Pests need warmth, particularly to breed. Wherever possible, insulate pipes, breaching, vents and other heat sources, particularly in tight out-of-the-way places.

Holes made to install pipes, computer lines, etc. must be sealed when the installation is complete. The job is not done until the holes are sealed.

3.5.11 Electrical Services

Introduction

For Building Management Staff in charge of electrical services and contracts, participating in an IPM program is minimal. Efforts will involve ensuring that simple measures are taken which make it difficult for pests to travel throughout buildings via electrical wires. There are also some other IPM practices relating to electrical work that can be kept in mind.

Access

In buildings, rodents and insects use electrical wires and conduits as means to gain access to, and to travel throughout buildings. While is impossible to remove every possible “route” of travel, the more impediments put in place, the more difficult it is for pests to thrive.

The best way to block off routes is to plug gaps and openings where wires and conduits come through walls, ceilings, floors, the backs of cabinets, etc.

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Access, Continued

It is imperative that all gaps and openings between the inside and outside of buildings be sealed off. Rodents can get through gaps and holes as small as 1/4” in diameter.

Steel wool and cement are the best substance to plug openings 1/4” or greater. Rodents may gnaw through softer substances.

Holes and gaps less 1/4” in diameter can be sealed with caulking.

Spray foam insulation from a can is also effective. Indoors, it is most important to seal areas leading to and from food service areas, where garbage is stored, and other where there are potential sources of food and water.

Lighting

Outdoor lighting often attracts insects. These insects may become pests themselves by entering the building, or by becoming a source of food for rodents. Choosing the right type of lighting, and placing it in the right locations, can help to reduce insect problems.

Ultraviolet (UV) light from outdoor lighting often attracts flying and crawling insects, which can then find their way into buildings. Different types of lighting vary in the amount of UV light they emit. White incandescent, blue mercury vapor, and fluorescent lighting emit relatively high amounts of UV light and are very attractive to insects. High (or more preferably) low pressure sodium vapor bulbs emit yellow light and are less attractive to insects.

Insects are attracted to sources of light, not where the light is directed. Lighting placed away from buildings, but trained on the buildings, is preferable to attaching lighting units directly to buildings.

If lighting must be attached to buildings, place it as far from doorways and windows as possible, particularly frequently used doorways.

Other Considera-tions

Electricians often go into areas of buildings which others don’t frequent (crawl spaces, inside drop ceilings, etc.). If you notice pests or evidence of pests in such an area, inform the pest management manager for the building.

All pests require food and water to survive. If you notice in abundance of either in an area where it shouldn’t be, let the pest management manager know.

3.5.12 Plumbing Systems

Introduction

For Building Management Staff in charge of Plumbing Systems, participating in an IPM program involves:

- reducing the amount of water that is available to pests
- limiting the access of pests to buildings, and their ability to travel throughout buildings

Reducing Sources of Water

All living things need water to survive. Reducing available water is a critical step in effective pest management. Unlike mice and insects, rats cannot metabolize enough water from food to survive. They need a reliable source of water.

Taking away sources of water is a crucial step in rat control.

Leaking pipes and faucets should be fixed as soon as possible. A five-gallon bucket under a slow leak may seem an easy solution to a plumbing problem. However, it provides a watering trough for rats, mice and roaches.

Clogged or slow drains should be fixed as quickly as possible.

Condensation is also a significant source of water for pests. Insulate any pipes in areas which might be prone to condensation.

Outdoor sources of water are just as important as indoor sources. Pay attention to outdoor faucets, roof and pavement drains, and sprinkler systems.

Reducing water sources is particularly important in areas which are close to potential sources of food for pests - kitchens, cafeterias, garbage chutes and dumpsters.

Pest Access

Rodents typically get into a building through openings around plumbing. Wherever possible, seal around sillcocks, sewer lines, and other openings.

Cement or metal materials (such as sheet metal or steel wool) work best for openings greater than 1 inch.

Caulk or fiberglass is acceptable for smaller gaps.

Continued On Next Page

Pest Access, Continued

Pipes running throughout buildings are often the means by which insects and rodents travel throughout buildings.

While it is virtually impossible to close off every travel route, some caulk or steel wool stuffed around pipe openings can make life more difficult for pests. Spray foam insulation also works well.

Pay particular attention to pipe runs leading to areas where sources of food and water are typically present.

Mice can squeeze through a hole as small as 1/4 inch. Insects can get through even tighter openings. It's necessary to be thorough when closing up access holes and runways.

General Considera-tions

Consider heat sources as possible pest problems. Insects and rodents need warmth, particularly in nesting areas. Wrap heat and hot water pipes whenever possible, especially in tight, out-of-the way places.

Plumbing problems often occur in areas of buildings that are seldom visited (such as crawl spaces). If you are in an area and see a lot of pest activity, let the Pest Management Lead Person for the building know.

All pests need food and water. Inform the pest management manager for the building, if you find significant amounts of either in areas where they should not be.

3.5.13 Roofing

Introduction

For Building Management Staff in charge of roofing systems, participating in an IPM program requires that roofs, roof drains, gutter systems, etc. are designed and maintained in a manner which not only protects the building from water damage, but also avoids conditions which are attractive to pests such as rodents, birds and insects.

Reduce Harborage and Access

Whenever possible, doors, hatches, skylights, and other openings should be screened.

Fan and vent openings should be covered with galvanized mesh with openings of 1/4" or smaller.

Continued On Next Page

Reduce Harborage and Access, Continued

Doors should be equipped with self-closers wherever practical.

Don't allow tree branches to touch or overhang roofs.

Overhanging limbs provides a bridge by which insects and rodents can gain access to structures.

Vegetation which climbs buildings, such as ivy, may also provide access and harborage to rodents and birds. It should be removed or trained onto trellises suspended away from buildings.

Before new roof covering is installed, the materials to be covered must be dry. If not, the new roofing will seal in the moisture, possibly creating an attractive habitat for carpenter ants or other pests.

Soffits and fascia must be kept intact. Small knot holes or cracks are open doors to insects and rodents.

Water damaged wood provides good nesting material for carpenter ants.

Birds which roost on ledges or on other parts of buildings may become pests or introduce pests such as bird mites into buildings. A number of products are marketed which physically prevents birds from roosting. These include "bird spikes", repellent coatings, netting, and more. Wire mesh can also be installed over tighter openings and overhangs frequently visited by birds.

Open chimneys can provide homes, as well as access into buildings for birds and other animals. Consider installing wire mesh or chimney caps.

Reduce Sources of Food and Water

Roof drains and down spouts should be kept open and free flowing. Standing water in gutters provides water to rats and other pests.

Gutters which are clogged, sag, or are pitched inappropriately will also hold water. Check gutters periodically (at least in the late fall and spring) for standing water.

Coordinate with the manager in charge of landscape maintenance to ensure that roof drainage does not cause pooling on the grounds.

Weeds growing on roofs or in gutters may produce seeds, which provide food to insects and rodents.

3.5.14 Tenants

Introduction

Tenants also have a role in IPM. Pest management operators cannot do an adequate job of controlling pests without the cooperation of those who work in the building.

When everyone does their part, IPM programs usually result in exceptional control of pests while using the least amount of pesticide necessary.

Tenant cooperation helps ensure that the building is as healthy and pleasant a workplace as possible.

Coffee Breaks and Lunch

Do not keep open, unsealed foods in desks, file cabinets, or lockers. If you need to keep food, keep it in tightly sealed plastic containers. Thin plastic bags will not keep a hungry mouse or roach from sharing your lunch.

Clean up any crumbs or drinks that might spill. A few crumbs under a desk can support a large number of roaches.

In central eating areas, be tidy. If possible, provide one central wastebasket with a tight fitting lid where all food and drink containers can be discarded. Pour liquids down sinks before throwing away cups. Wrap up any crumbs in wrappers tightly before discarding.

If you must eat at your desk, discard unfinished foods and scraps (including food wrappers) by wrapping them tightly and placing in the rubbish container.

Some water coolers have a catch basin for spilled water. Make sure this is emptied at the end of every work day.

Plants

Do not over-water plants. Sopping wet soil, or water in the overflow dish, does not do the plant any good and provides a great watering hole for insects and rodents.

It is better to give plants a little water more frequently, than a lot of water once in a while.

Continued On Next Page

Plants, Continued

If you keep water in a container for watering plants, make sure the container is sealed. Open water containers will attract and support insects and rodents.

Keep pots and the areas around them clean of leaves, seed pods, etc. These can provide a food and nesting materials for rodents and insects.

Don't keep plants that produce seeds or fruit. These can provide a great snack for rodents.

If you use a pesticide on your plants, make sure you read and follow the label directions.

Recycling

Rinse all cans and bottles, and shake out excess water before putting in recycling bins. Rinse food off any styrene plates that go into recycling containers. Clean, dry recyclables will not attract pests.

Empty beverage containers need to be collected and confined to limited areas so that if problems do occur, they are in one isolated location.

If you recycle, place your recyclables in designated receptacles. Don't store them by your work station for later pickup. This keeps all sources of food in one location making it easier to detect and control pest problems should they occur.

Don't store stacks or boxes of paper to be recycled right next to garbage cans or recycling storage bins. This is equivalent to building a pest Bed and Breakfast for pests.

General

Don't give the pests water.

Don't give the pests a place to live.

If you find leaks in water fountains, water coolers or rest room plumbing, let your building manager know. Small, unfixed leaks can help support pests.

Office trash should be picked up in the afternoon rather than the morning so that coffee break and lunch debris doesn't sit overnight, providing a revolving menu for pests. Call your building manager if your office trash is being picked up before lunch.

Continued On Next Page

General

If you see a pest, call Building Management and let them know. If possible, try to note exactly where in a room it was seen and where it ran off to. For instance, if a roach is seen running into a particular hole in the floor, this can be plugged.

Keep your work area neat and organized. Congestion and clutter can create excellent pest hiding places.

Pick up spillage that can attract and feed pests. Spilled coffee grounds and beverages should be cleaned up as the spill occurs.

Individuals responsible for purchasing need to understand storage limitations. Excess supplies result in cluttered and congested storage areas. This makes cleaning, maintenance, and proper pest control difficult, if possible at all.

4 Engineering and Trades Plan

Chapter contents

The table below lists sections included in this chapter.

4.1 Engineering Staff

Introduction

The engineering staff of the building is responsible for all maintenance and repairs.

The staff is comprised of:
- Stationary Engineers and Trades personnel
- Electronic Technicians

Stationary engineers

Stationary Engineers and Trades personnel are responsible for the maintenance and repair of:
- Plumbing systems
- Plumbing fixtures
- Building Automated Control systems
- Electrical systems
- Lighting systems
- All Building structure components
- Heating Ventilating Air Conditioning and Refrigeration systems
- Roof leaks
- Water leaks
- Building envelope

Stationary Engineers and Trades personnel will be responsible for the following duties and abilities:
- Response to service calls
- Training of security personnel on security systems
- Building maintenance repairs
- Loading dock equipment repairs
- Inventory control
- Watch tours
- After hours response
- Repair and the Siemens™ security system
- Repair and maintenance of the Invensis™ Building Automated Control System
- Honeywell Enterprise Building Integrator™ (EBI)
- Repair and maintenance of the Cerberus™ fire life safety system
- Preventive Maintenance
- Repair and maintenance of building audio video equipment
- Training of new Engineering Team members
- Use of sound judgment in assessment of problems and troubleshooting of equipment and devices
- Ability to interact well with coworkers, building tenants, and the public

Continued On Next Page

4.1 Engineering Staff, Continued

Electronic technicians

Electronic Technicians are responsible for the maintenance and repair of:

- Audio video systems
- Security systems
- Fire life safety systems
- Building electrical system

4.2 Maintenance

Introduction

BPM uses a computerized software program created by Maximo ® for preventive and unscheduled maintenance of all equipment.

The Department of General Services has been using Maximo for over 15 years with improved upgrades. Maximo helps ensure staff maintain building equipment according to manufacturers' recommendations and standards.

Each month, equipment maintenance is scheduled and work orders are automatically generated. The work orders are then assigned and issued to staff for completion.

Work orders are generated for both:
- Scheduled, preventative maintenance
- Unscheduled maintenance

Work order reports must also be generated and reviewed to identify those processes which are successful and which may require revision.

A hard copy of all pertinent equipment information is kept in a central office location for purposes of viewing and analyzing information to develop the maintenance program profile. This information can also aid in budget preparation and projections of future equipment expenditures.

Scheduled, preventative maintenance

When staff perform scheduled maintenance, they must be aware of:
- Responsibilities
- Deadlines

Stationary Engineer Responsibilities

1. All members of the East End Complex engineering team are to turn in work orders upon completion. Do not wait until the end of the month.
2. Engineers are to complete each work order with a detailed description of the action taken and materials used on each job. This information is to be entered into the Planning Screen - Failure Reporting section - under the remarks section.

For additional information please see Work Order Procedures and Flow Chart below.

Deadlines

If any member of the Engineering and Trades team is unable to meet the due date set by the supervisor on the work order, notify the Chief Engineer or Supervisor of Building Trades by mid-month, which will allow management the opportunity to reassign the work.

Continued On Next Page

4.2 Maintenance, Continued

Unscheduled maintenance

Unscheduled maintenance is defined as anything other than scheduled maintenance, such as hot and cold room calls, water leaks, lighting issues, etc.

When performing unscheduled maintenance, use the same work order process as defined in the Scheduled, Preventative Maintenance section.

Reviewing work order reports

Reporting data extracted from the Maximo database will be used to monitor the efficiency of:

- Preventive Maintenance program
- Service calls tracking
- Inventory management

Records in the Maximo database can also be used to review costs associated with:

- Labor
- Materials
- Equipment maintenance

4.3 Operations

Work order creation

When tenant service requests are faxed to the BPM Call center, a routine work order entry must be keyed into Maximo.

Use the MAXIMO Fast Ticket Screen to enter new tenant service requests:

1. Insert Work Order number.
2. In the Description block enter as much information as needed to thoroughly describe the job. By double clicking on the block, a "long description" window will open to allow as much data as needed. Note: keep lines short enough to ensure complete printing of the line.
3. At the Build/Agency block, pull a drop down list and enter the proper billing code. Note: This is for who will be billed for services required.
4. At Equipment block, enter same floor number or room number.
5. In the Classification block pull down the drop down box and enter the proper description.
6. In the Skill block use the drop down list and choose the proper job task.
7. In the Status block use the drop down list and chose from the menu.
8. In the Crew block use the drop down list and choose from the menu.
9. The Contact is the name and number of the person to see at the location.
10. The Requestor is either the same person or the caller or BPM.
11. Use the Auto Reporting for all information that will explain all needed information.
    SKILL …….HVAC, ELECTRICAL
    SYSTEM…….INTERIOR, EXTERIOR
    PROBLEM……EQUIPMENT
    CAUSE……..
    REMEDY……..NA

The work order will be placed in a WAPPR status so that the Supervisor of Building Trades or Chief Engineer may retrieve the work order or work orders with the same status. After the Supervisor of Building Trades or Chief Engineer has retrieved the work order from the database it is then assigned and issued to the appropriate Engineering and Trades staff.

Completing work orders

Work orders should be competed within four (4) business hours, from the time of dispatch, with the exception of emergencies.

Emergencies are defined as:

- Fire alarm
- Running water
- Elevator entrapment
- More than three calls within one hour for the same problem
- Calls from the Building Manager's office

Continued On Next Page

4.3 Operations, Continued

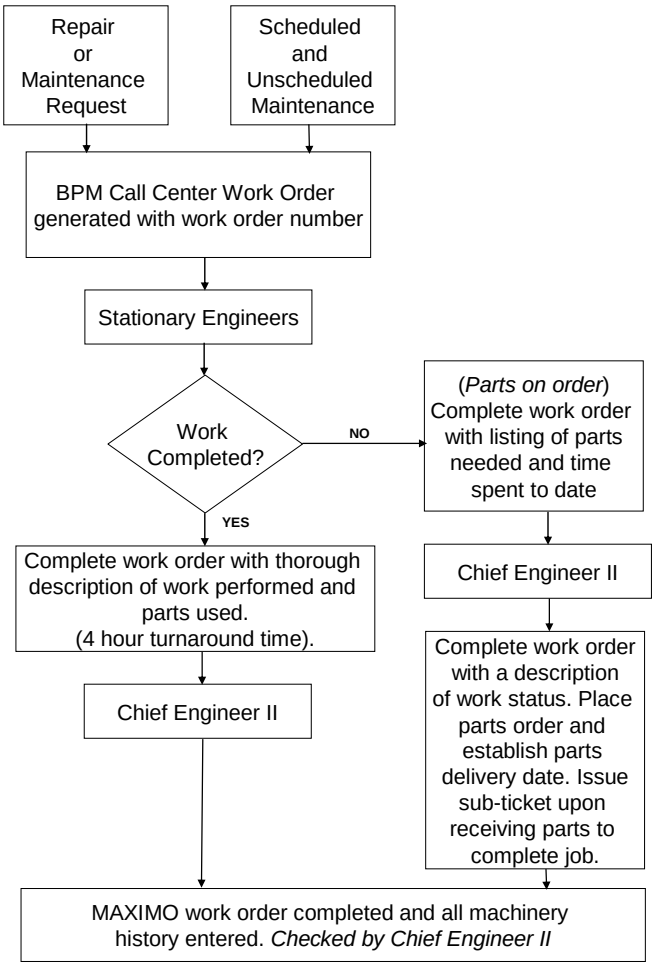
Work order summaries

Work orders are to be turned in each Friday for system entry and completion of the Monday morning summary.

A weekly summary is provided by all supervisors to the Chief Engineer II or management staff for the week prior reporting on the number of completed or in progress work orders.

The Chief Engineer II provides a Monthly Summary to Building Management at the end of each month to report total work orders for the month by service category, total work orders submitted, and total work orders completed and outstanding.

Work order flow chart



4.4 Building Systems Monitoring

Introduction

A combination of automated systems and manual procedures are used to:
- monitor conditions delivered in occupied systems
- identify and resolve equipment problems
- continuously deliver indoor comfort

4.4.1 Automated Systems

The following automated systems provide members of the engineering staff with tools to effectively evaluate building performance:
- Building Automated Control System
- HVAC alarms

Building automated control system

Invensys Intelligent Automation (I/A) Building Automated Control System (BACS).

The BACS is capable of evaluating the systems performance by logging short- and long-term historical data according to parameters set up by the operator (sample rate, duration, change of value, etc.). This information can then be used to investigate and/or correct equipment performance, building interior conditions and to document indoor air quality issues. This information may also be used to forecast power consumption and/or power usage.

HVAC alarms

Alarm and alert set points must be programmed to notify engineering department operator workstations and members of the security staff.

With the exception of the buildings interior zones the buildings main HVAC equipment such as air handlers, chillers, boilers, computer room equipment, etc. should all be configured with alarming notifications.

In addition, exception reports should be run periodically to monitor the building's interior performance.

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4.4.1 Automated Systems, Continued

HVAC alarms, continued

Configure alarm settings for building interior zones in accordance with the table below.

Parameter/Set Point	HVAC Alarm Setting
Cooling set point	> 75 degrees
Heating set point	< 69 degrees
Under floor static pressure	
Return air temperature	> 78 degrees
Supply air temperature	> 65 degrees
Building static pressure	(Low)
Building static pressure	(Hi)

4.4.2 Manual Procedures

General building operations and parameters must be recorded and regularly inspected at 6am and 6pm.

All comfort control zones, served by variable air volume and under floor fan units, must be checked for temperature and proper airflow on a floor-by-floor basis.

4.4.3 Delivering Prompt Repairs

Delivering prompt repairs

Response to service calls are handled by both manual and automated means.

Manual responses

All requests from the tenant are faxed to the BPM Call Center.

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4.4.3 Delivering Prompt Repairs, Continued

Delivering prompt repairs, continued

Information from the service request form is entered into Maximo to generate a work order.

The following basic information must be entered on the service request form for Maximo data entry:

- Building Number (i.e., 049, 051, 052, 053, 054 and 078)
- Room Number or Suite
- Nature of the Problem (i.e., hot, cold, etc.)
- Phone Number and Name of contact person

Automated Responses

The Building Automated Control System (BACS) has programmed alarm and alert set points. When the alarm and alert set points are triggered, the Remote Alarm Notification System (RANS) is initiated.

RANS sends messages to cell phones and pagers carried by Chief Engineers and Building Management.

The staff member responding to the RANS notification is then responsible for investigating the issue and taking action. Work orders can then be initiated through BPM and assigned to ensure a timely response by members of engineering staff.

4.5 Indoor Air Quality Management Plan

Introduction

Adherence to an Indoor Air Quality Management Plan will help prevent the development of indoor air quality problems in the building, and thereby will maintain the well-being of occupants.

4.5.1 Maintenance

Maintenance tasks that must be completed and documented as part of the IAQ Management Plan include:

- Air filter replacement
- HVAC inspections
- BACS checks and completion of the watch tour log sheet

Air filters

BPM Facilities Maintenance staff must conduct air filter changes every three (3) months on all primary and terminal Air handling units. Records of these air filter changes must be kept in the Building Manager's office.

HVAC inspections

The building's air handling systems and components must be inspected and tested semi-annually and annually for proper operation. Any discrepancies resulting from these inspections are immediately taken care of by Facilities maintenance staff or by contracting out.

BACS checks

All air handling system operations and/or adjustments are done according to Building Standards Code, Title 24.

The Building Automated Control System (BACS) monitors and controls the quantity of supply air that is distributed through three (3) main air shafts serving floors 2nd – 6th. The remaining first floor is supplied by two (2) separate air handling units that are centrally located on the 1st floor of the building.

The BACS functionality is routinely checked and verified for proper operation by logging all critical data such as supply air static pressure, interior zone temperatures etc. three (3) times a day.

See the following watch tour log sheet for an example of the parameters which should be checked.

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4.5.1 Maintenance, Continued

Watch tour log sheet

WATCH TOUR LOG SHEET:

DATE											
Engineer											
OSA Temp											
Status											
Chiller 1	0600	1100	1800	Chiller 2	0600	1100	1800	Chiller 3	0600	1100	1800
CWST				CWST				CWST			
CWRT				CWRT				CWRT			
ChWST				ChWST				ChWST			
ChWRT				ChWRT				ChWRT			
Oil Temp				Oil Temp				Oil Temp			
Oil Level				Oil Level				Oil Level			
Cond Press				Cond Pres				Cond Pres			
Evap Press				Evap Press				Evap Press			
RUN Hrs				RUN Hrs				RUN Hrs			
% Speed				% Speed				Cond Temp			
Cond Temp				Cond Temp				Evap Temp			
Evap Temp				Evap Temp				ChW Flow			
ChW Flow				ChW Flow							
AHU-1	0600	1100	1800	AHU-2	0600	1100	1800	AHU-3	0600	1100	1800
SA Temp				SA Temp				SA Temp			
RA Temp				RA Temp				RA Temp			
MA Temp				MA Temp				MA Temp			
DUCT Sp				DUCT Sp				DUCT Sp			
Building Sp				Building Sp				Building Sp			
SF-1A- Hz				SF-2A Hz				SF-3A-Hz			
SF-1B-Hz				SF-2B-Hz				SF-3B-Hz			
RF-1A-Hz				RF-2A-Hz				RF-3A-Hz			
RF-1B-Hz				RF-2B-Hz				RF-3B-Hz			
RF-1C-Hz				RF-2C-Hz				RF-3C-Hz			
RF-1D				RF-2D-Hz				RF-3D-Hz			
BOILER #1				BOILER #2				METERS	0700		24Hr
								GAS			
								Boiler M up			
								City M up			
								Tower M up			
								Elec			
								Elec			
								Elec			
								Elec			
Pump Status											
ACWP-1				ChWP-1				HWP-2			
ACWP-2				ChWP-1							
ACWP-3				ChWP-1							
ACWP-4				ChWP-1							
CP-1				ChWP-1							
CP-2				ChWP-1							
CP-3				HWP-1							
Comments:											

4.5.2 Responding to Air Quality Complaints

Introduction

The following procedure must be followed to control and establish standard processes and practices when responding to any issues concerning the Indoor Air Quality of buildings.

All IAQ matters will be handled as a priority with immediate response and diligent follow up until such matters have been resolved. It is BPM's intent to promptly take all necessary steps to maintain a healthy and safe work environment and maintain open communication for all building occupants, BPM staff and the public.

The standard process is as follows:

- Complaint is received
- Supervisor is notified
- BPM personnel are dispatched to investigate and Maximo ticket is opened
- BPM personnel complete IAQ checklist
- BPM makes determination and escalates if necessary

Receiving complaints

Notification will originally come from the office handling business services for the Tenant Agency to the BPM call center. The office may be a Business Services Officer (BSO), a Facilities or Health and Safety Unit. The notification will include the caller's name and phone number, the complainant's name and number, location and description of problem.

Notification and dispatch

The BPM call center will immediately notify a supervisor or manager by radio and issue the Maximo work ticket. The supervisor or manager will dispatch personnel to investigate the IAQ problem as soon as possible.

IAQ checklist

BPM personnel will be dispatched with the Maximo ticket and IAQ checklist. All sections of the IAQ checklist will be completed by BPM staff and returned to the supervisor or manager as soon as the call is completed.

For an example of the IAQ Checklist, go to page 4-14.

Continued On Next Page

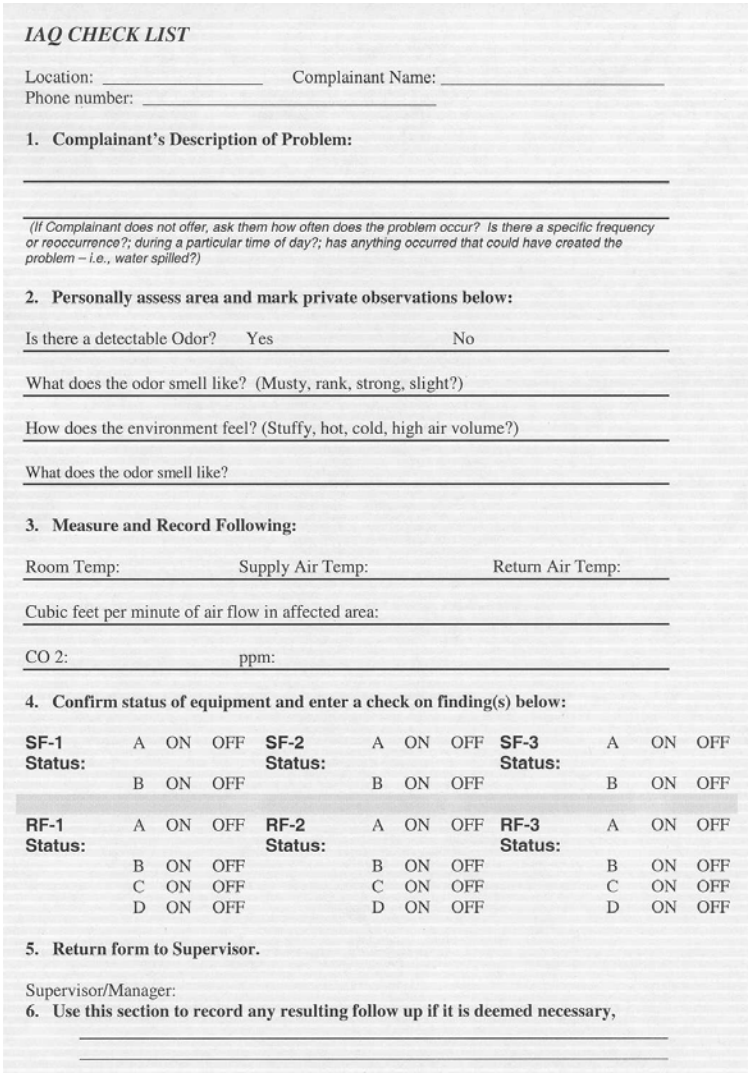
4.5.2 Responding to Air Quality Complaints, Continued

Determining plan of action

Depending upon the description of the problem and findings, its urgency will be determined and appropriate action taken to address the IAQ problem as soon as possible.

If BPM staff has not found or made obvious and immediate correction, BPM will then contact their internal Emergency Safety Health Operations Program (ESHOP) for further direction and advisement. Notification to ESHOP will include the problem report, initial findings and steps BPM site staff has taken or is taking to mitigate.

Example IAQ checklist



IAQ CHECK LIST

Location: _____ Complainant Name: _____
Phone number: _____

1. Complainant's Description of Problem:

_____

(If Complainant does not offer, ask them how often does the problem occur? Is there a specific frequency or reoccurrence?; during a particular time of day?; has anything occurred that could have created the problem – i.e., water spilled?)

2. Personally assess area and mark private observations below:

Is there a detectable Odor? Yes No

What does the odor smell like? (Musty, rank, strong, slight?)

How does the environment feel? (Stuffy, hot, cold, high air volume?)

What does the odor smell like?

3. Measure and Record Following:

Room Temp: Supply Air Temp: Return Air Temp:

Cubic feet per minute of air flow in affected area:

CO 2: ppm:

4. Confirm status of equipment and enter a check on finding(s) below:

SF-1 Status:	A	ON	OFF	**SF-2 Status:**	A	ON	OFF	**SF-3 Status:**	A	ON	OFF
	B	ON	OFF		B	ON	OFF		B	ON	OFF
RF-1 Status:	A	ON	OFF	**RF-2 Status:**	A	ON	OFF	**RF-3 Status:**	A	ON	OFF
	B	ON	OFF		B	ON	OFF		B	ON	OFF
	C	ON	OFF		C	ON	OFF		C	ON	OFF
	D	ON	OFF		D	ON	OFF		D	ON	OFF

5. Return form to Supervisor.

Supervisor/Manager:

6. Use this section to record any resulting follow up if it is deemed necessary,

_____

_____

4.5.3 Training

All members of the facilities maintenance staff must be well-versed in matters pertaining to IAQ.

Maintenance staff must complete:
- IIPP Training
- Local agency workshops

IIPP training

BPM's internal Injury Illness Prevention Program (IIPP) includes monthly training sessions where IAQ policy and procedures are communicated to all members of the Facilities Maintenance staff.

Local agency workshops

Local training resources – i.e. Pacific and Electric Co (PG &E) and Sacramento Municipal Utility District (SMUD) – can be utilized. Workshops are available throughout the year.

4.5.4 Housekeeping

The majority of building cleaning is performed after typical business hours Monday through Friday.

All cleaning tasks must be formed in accordance with the guidelines listed in Chapter 2: Custodial Plan of this manual.

Of utmost importance to the Indoor Air Quality of the building are the:
- use of sustainable cleaning products
- practice of sustainable cleaning methods
- proper use of chemicals and cleaning equipment

4.5.5 Pest Control

Pesticides are used only as a last resort.

All pest control operations must be performed in adherence with the guidelines listed in Chapter 3: Integrated Pest Management of this manual.

4.5.6 Tenant Relations

There are meetings held every week between BPM and the tenants. These meetings are primarily held to discuss any issues regarding building operations and or health & safety.

During these meetings any issues related to Indoor Air Quality will be addressed and documentation from Building and Property Management and Emergency Safety Health Operations Program (ESHOP) will be provided.

4.5.7 Renovation, Redecorating, and Remodeling

Introduction

One of BPMs' primary responsibilities is to ensure that every effort is made to provide tenants with a safe and comfortable work environment.

The Department of Education building's under floor air distribution (UFAD) system is relatively new in design and is efficient as well as successful in providing individual comfort levels to the building's occupants.

The UFAD system also includes a cabling duct, which provides a structural pathway for other system wiring.

All efforts will be made to accommodate the tenant in meeting their program needs. However, it is BPM's responsibility to ensure that the UFAD system's original design is not altered or changed and that the system's capacity is not exceeded in any way. It is also expected that all work will be performed in a workmanship like manner of best quality.

Under floor access protocol

The following protocol has been developed for under floor access. This protocol:

- establishes a reliable method of communication between the tenant and BPM
- ensures all safety precautions are taken
- ensures any system changes or alterations are monitored

This protocol consists of:

1. Notification requirements
2. Documentation requirements
3. Securing the work site
4. Cleanup and inspection

Continued On Next Page

4.5.7 Renovation, Redecorating, and Remodeling, Continued

Notification requirements

All contractors and technicians rendering any installation service to the tenant shall be subject to building management approval and supervision. This applies to all work performed in the building, including, but not limited to:

- installation of telephones
- telegraph equipment
- wiring of any kind
- any electrical devices
- installations affecting floors, walls, woodwork, windows, ceilings and any other physical portion of the building

The building's Support Services Office must be notified before any redecorating, remodeling or renovation changes are made.

It is the Support Services Office's responsibility to notify BPM a minimum of 24 hours prior starting a job in order to make necessary arrangements.

Documentation requirements

A Form 9, Space Action Request, must be submitted to the Department of Education and BPM prior to the start of any work if the change includes cabling in addition to existing wiring.

If BPM staff (Engineers, Electricians, etc.) will be required as part of the work, a work order request form is to be submitted to the Building Manager's Office through the Support Services Office.

BPM staff should be involved if the work includes, but is not limited to, bagging smoke detectors, changing filters, vacuuming, etc.

Services provided by BPM may be billed to the tenant.

Securing the work site

Cones and caution tape are to be used around the access site and is to be highly visible and arranged so as to ensure tenants cannot enter the area.

Cleanup and inspection

Upon completion of work, the surrounding and affected area(s) must be thoroughly cleaned in order to prevent dust and debris from being introduced into the air system.

Cleaning includes the use of a portable vacuum cleaner.

Prior to closing the cabling duct, BPM and tenant staff shall complete a joint inspection of the area to concur it is ready for closing.

4.6 Refrigerant Management

Introduction

All members of the BPM maintenance staff that are responsible for the servicing and repairing of refrigeration equipment are required by law to be certified by EPA guidelines (40 CFR part 82 Subpart F).

As part of the preventive maintenance program for the building, facilities maintenance staff are issued scheduled work orders on a monthly basis to perform equipment checks such as verify proper equipment refrigerant charge and to record and report any abnormalities to building management.

Also, all levels of documentation must be analyzed to ensure compliance with all rules and regulations set fourth by the EPA Clean Air Act, Title VI, Rule 608.

Refrigerant tracking system

A tracking system is in place that consists of recording the amounts of refrigerant purchased minus amount used.

At the end of each month an inventory of stock is conducted by weighing each bottle for verification.

Each member of the building's maintenance staff is accountable for reporting and documenting all amounts of refrigerant used on a master refrigerant log sheet.

The log sheet is used for tracking the person using the refrigerant and a brief description of each repair.

5 Site and Grounds

Site overview

The Department of Education Building is located at N and 15th Streets in the City of Sacramento. The project site covers approximately three-quarters of a city block.

This urban setting is virtuously flat with approximately 90% of the site covered by the six story building. The pervious surface of the site, including landscaping, is 25% of the entire parcel.

Building Foot print: 100,000 sq. ft.
Site boundaries including city planting areas: 132,000 sq. ft.
Impervious Pavement area including daycare center: 96,000 sq. ft.
Landscape area: 9,500 sq. ft.

Storm drain and sanitary sewer lines are common in downtown Sacramento – everything gets treated.

Policies and plans

BPM Sites and Grounds policies include:

- Erosion and sedimentation control
- Exterior management plans

See the following sections in this chapter for specific information.

Chapter contents

The table below lists sections included in this chapter.

5.1 Erosion and Sedimentation Control

Introduction

The Erosion and Sedimentation Control policy covers:

- Erosion control policy
- Materials
- Logs and reports

5.1.1 Erosion Control Policy

Erosion and stormwater control objectives

BPM will maintain the highest quality erosion control measures possible during construction and maintenance activities at this site. The intent of this policy is to:

- Minimize the amount of disturbed soil on the existing site.
- Prevent runoff from offsite areas from flowing across disturbed areas.
- Slow down the runoff flowing across the site.
- Remove sediment from on-site runoff before it leaves the site.
- Meet or exceed local or State requirements for sediment and erosion control plans.
- Prevent polluting the air with dust and particulate matter.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent loss of soil by storm water runoff and/or wind erosion.
- Prevent loss of topsoil by stockpiling it.

Erosion and stormwater control implementation

This erosion and sedimentation control policies below and all specified erosion control techniques must be incorporated in all site construction plans.

Temporary erosion and stormwater control measures

The following guidelines shall be followed when construction projects are being planned for planted areas, paving areas, infrastructure repairs or any other disruptions on the site grounds areas within the property limits including city easements and planting areas:

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5.1.1 Tenants, Continued

Temporary erosion and stormwater control measures, continued

1. Use best practices as stated in U.S. EPA Document No. EPA832/R-92-005 (1992), Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices – Chapter 3: Sediment and Erosion Control. www.epa.gov/npdes/pubs/chap03_conguide.pdf

2. Consult local standards or codes and obtain necessary permits. http://www.msa.saccounty.net/sactostormwater/construction.asp

3. During the construction period, no disturbance beyond the limits of construction shall be permitted. The clearing limits shall be maintained for the duration of construction. The boundaries of the area shall be clearly flagged by a continuous length of survey tape (or fencing, if required) prior to construction.

4. All topsoil removed shall be stockpiled for reuse.

5. All required sedimentation/erosion control facilities must be in operation prior to land clearing and/or other construction to ensure that sediment laden water does not enter the natural draining system. All erosion and sediment facilities shall be maintained in a satisfactory condition until such time that clearing and/or construction is completed and the potential for on-site erosion has passed. The implementation, maintenance, replacement and additions to erosion/sedimentation control systems shall be the responsibility of the contractor.

6. As construction progresses and as unexpected or seasonal conditions dictate, it should anticipate that more erosion and sedimentation control facilities may be necessary to ensure complete siltation control on the site. During the course of construction any new conditions that may be created by work activities and to provide additional facilities, over and above the minimum requirements, needed to protect adjacent properties and the water quality of the receiving drainage system shall be addressed.

7. Debris shall not be washed into the storm drainage system. Material dropped, washed or tracked from vehicles onto the parking area and city right-of-way or into the existing storm drainage system shall be removed.

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5.1.1 Erosion Control Policy, Continued

Temporary erosion and stormwater control measures, continued

8. Temporary erosion control facilities shall be inspected weekly and maintained within 24 hours following a storm event. Sediment shall be removed to insure the facilities will function properly. The facilities shall be satisfactorily maintained until construction is completed and the potential for on-site erosion has passed. Written records shall be kept of weekly reviews of the ESC facilities during the wet season (Oct. 1 to April 30) and of monthly reviews during the dry season (May 1 to Sept 30).

9. All storm drain inlets made operable during construction shall be protected so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.

10. Any areas of exposed soils, including roadway embankments, that will not be disturbed for two days during the wet season or seven days during the dry season shall be immediately stabilized with the necessary ESC methods including seeding, mulching, plastic covering or other appropriate method.

11. The cleaning operation shall not flush sediment-laden water into the downstream system. At no time shall more than one (1) foot of sediment be allowed to accumulate within a catch basin. All catch basins and conveyance lines shall be cleaned prior to paving.

12. All paved areas are to be kept clean for the duration of the project. Stabilized construction entrances and roads shall be installed at the beginning of construction and maintained for the duration of the project. Additional measures, such as wash pads, may be required.

13. Where straw mulch for temporary erosion control is required, it shall be applied at a minimum thickness of 2 to 3 inches.

14. Prior to beginning of the wet season (Oct 1), all disturbed areas shall be reviewed to identify which ones can be seeded in preparation for the winter rains. Disturbed areas shall be seeded within one week of the beginning of the wet seasons. A sketch map of those areas to be seeded and in those areas to remain uncovered shall be submitted to the site inspector. The site inspector can require seeding of additional, areas in order to protect surface waters, adjacent properties, or drainage facilities.

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5.1.1 Erosion Control Policy, Continued

Temporary erosion and stormwater control measures, continued

15. If the project is large enough to entail contract documents, these contract drawings will include specification sections for erosion and sedimentation control. See Appendix B Erosion and Sedimentation Control Specification and edit to meet the needs of the project. Additionally, the contractor shall be required to submit temporary erosion/sedimentation control plans as outlined in these contract specifications.

16. Limit disruption of natural water flows by minimizing stormwater runoff, increasing on-site infiltration and reducing contamination.

17. The contractor shall inspect all erosion control measures after a heavy rainfall (one-half inches in less than 24 hours).

Permanent erosion and stormwater control measures

- Filter drains that run to the rivers.
- Restore any areas destroyed by erosion and sedimentation.
- Inspect storm water systems annually, prior to storm events and immediately after storm events to ensure proper operation of storm water controls.
- Augment soil prone to erosion.
- Replace and add plantings in the landscape design to retain soil in place.
- Use native plants. Refer to section on Plant Material Policy.
- Control any silt or chemicals, or pollutants by SWPP Filtration.
- Stockpile and cover all removed topsoil with 10 mil. polyethylene plastic sheeting for reuse.

5.1.2 Materials

Use the following erosion control guidelines when using any of the following materials:

- Imported topsoil
- Commercial fertilizer
- Iron sulfate
- Mulch
- Plants
- Spot spray
- Soil
- Soil amendment
- Bioretention
- Filter strips

Imported topsoil

Imported topsoil shall consist of material obtained from sources outside the limits of the project in conformance with the provisions in Section 6-2, "Local Materials" of Caltrans Standard Specifications.

Unless designated in the special provisions, the Contractor shall make the arrangements for obtaining imported topsoil and the Contractor shall pay all costs involved.

Imported topsoil shall consist of fertile, friable soil of loamy character, and shall contain an amount of organic matter normal to the region. It shall be obtained from well-drained arable land and shall be reasonably free from subsoil, refuse, roots, heavy or stiff clay, stones larger than 25 mm (one inch) in size, coarse sand, noxious seeds, sticks, brush, litter and other deleterious substances.

Imported topsoil shall be capable of sustaining healthy plant life.

Commercial fertilizer

Commercial fertilizer shall conform to the requirements of the California Food and Agricultural Code.

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5.1.2 Materials, Continued

Commercial fertilizer, Continued

Commercial fertilizer shall conform to the requirements of the California Food and Agricultural Code.

Commercial fertilizer for erosion control work shall be in pellet or granular form and shall have a guaranteed chemical analysis of 16 percent nitrogen, 20 percent phosphoric acid and 0 percent water soluble potash, and shall contain a minimum of 12 percent sulfur.

Commercial fertilizer for highway planting work shall be in pellet, granular or tablet form and shall have the chemical analysis specified in the special provisions.

Iron sulfate

Iron sulfate shall be ferrous sulfate in pellet or granular form containing not less than 18.5 percent iron expressed as metallic iron.

Iron sulfate shall conform to the requirements of the California Food and Agricultural Code.

Mulch

Mulch shall consist of wood chips, tree bark, or shredded bark, or any combination thereof.

Do not use mulch materials produced from pine trees grown in Alameda, Monterey, Santa Clara, Santa Cruz, San Luis Obispo or San Mateo Counties.

Wood chips shall be manufactured from clean wood and must have the following characteristics:

- The particle size of the chips shall be between 1/2 inch and 3 inches in length, and not less than 3/8 inch in width and 1/16 inch in thickness. At least 85 percent, by volume, of wood chips shall conform to these sizes.
- Wood chips produced from tree trimmings which contain leaves or small twigs will not be accepted.
- Tree bark shall have a particle size between 1/2 inch and 1 1/2 inches and shall be free of salt and foreign materials such as clods, coarse objects, sticks, rocks, weeds or weed seeds.

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5.1.2 Materials, Continued

Mulch, continued

- Shredded bark shall be a mixture of shredded bark and wood; shall have a particle size between 1/8 inch and 1 1/2 inches in thickness and one inch to 8 inches in length; and shall be free of salt and deleterious materials such as clods, coarse objects and rocks.
- At least 75 percent, by volume, of shredded bark shall conform to the sizes specified.
- A Certificate of Compliance for mulch shall be furnished to the Engineer in that conforms with the provisions in Section 6-1.07, "Certificates of Compliance."

Plants

Replace dead or dying plants, stakes, basins, and other damage to installation as directed at inspections.

For more guidelines related to plants, see the Exterior Management Plan section of this chapter.

Spot spray

Spot spray non-selective systemic herbicide to prevent regrowth of annual and perennial weeds before seed heads form. Remove dead weeds where directed to promote plant growth and neat appearance.

Soil

In some jurisdictions across the country, soil amendments may be inspected as part of the sediment control plan for a site, usually upon site completion.

Routine inspection of amended soils should evaluate factors that may affect the soil's infiltration capacity, aeration and organic content.

Typical post construction concerns include areas subject to compaction, hydric or waterlogged soils, poor cover conditions, increased development, and a decrease in organic content.

In addition, a routine soil infiltration rate analysis of amended soils in potential problem areas is recommended.

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5.1.2 Materials, Continued

Soil amendment

Soil amendment shall be a wood or bark product, treated to absorb water quickly, or dry organic compost derived from sewage sludge, plant material or rice hulls; shall be friable and pass a 25-mm (one inch) sieve and shall comply with the requirements in the California Food and Agricultural Code.

Rice hull compost and plant material compost shall not contain living vegetation, dirt or other objectionable material, pathogenic viruses, fly larvae, insecticides, herbicides, fungicides nor poisonous chemicals that would inhibit plant growth.

Soil amendment shall be packaged so that compliance can be readily determined, or shall be accompanied by a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." of Caltrans Standard Specifications.

Bioretention

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation.

This maintenance can be incorporated into regular maintenance of the site landscaping.

The use of native plant species in the bioretention cell will reduce fertilizer, pesticide, water, and overall maintenance requirements.

Filter strips

Filter strips require standard vegetation management, such as mowing, irrigation, and weeding.

Typical maintenance activities include inspection of filter strips at least twice annually for erosion or damage to vegetation and additional inspection after periods of heavy runoff.

Recent research on biofiltration swales indicates that grass height and mowing frequency have little impact on pollutant removal rates. Therefore, mowing may only be necessary once or twice a year for safety and aesthetics or to suppress weeds and woody vegetation.

5.1.3 Logs and Reports

Logs shall be maintained by the Chief Building Engineer. The logs must details building operations and maintenance activity to ensure that this Sedimentation Control Plan has been followed.

In addition, reports shall be generated to provide information on all maintenance and operation tickets that include work on the site and grounds.

5.2 Exterior Management Plan

Introduction

Parks, public grounds, and yards surrounding State buildings as well as groomed roadside medians; islands and planter strips along urban streets are considered developed landscapes to varying degrees.

Developed landscapes require careful design and maintenance in order to maximize their desired uses while minimizing pest problems. The following specific guidelines apply to these developed areas.

Grounds maintenance team

Each Service Assistant / Groundskeeper will bring a background of experience, knowledge and skills to the maintenance and landscape team.

Any new grounds team members will receive training from the existing grounds team members in landscapes systems and equipment operation. New grounds team members will also receive training provided by other State departments in Integrated Pest Management (IPM) and chemical safety practices.

During this training period it will be expected that all efforts will be made in providing help and training to new grounds team members to ensure that a level of comfort is established in existing landscape system design, operation and understanding.

5.2.1 Training

Training for staff and groundskeepers responsible for exterior management will include:

- An overview of IPM
- Best landscape/plant health care practices
- Noxious weed identification, control, and regulation
- Pesticide laws, hazard communication, and chemical safety
- Irrigation system maintenance

Continued On Next Page

5.2.1 Training, Continued

IPM

All staff associated with the planning, design, construction, and maintenance of state owned property, buildings and facilities landscaped areas where vegetation is managed and where pests may need to be controlled shall receive an orientation to the IPM policy.

An overview of IPM must include:

- Identification and life cycles of typical California pests, weeds and beneficial insects.
- Survey of relationship between insects and their environment such as climate conditions, food sources, like species, competitors and natural/unnatural enemies.
- Instruction in determining permissible threshold levels of pests for different types of landscapes.
- Monitoring and reporting techniques.
- Guidelines about when to use pesticides (only as a last report).

Best landscape practices

Best landscape/plant health care practices shall include:

- Keeping an existing plant materials list that states what the natural growth habits are for existing plants to achieve most vigor.
- Testing and maintaining soil compositions and structures, which includes:
  - Soil testing – (to be done periodically) for organic composition, nutrient availability and pH.
  - Natural fertilizer applications - soil and foliar feedings at periodic seasonal intervals.
- Ensuring the safe use of tools and equipment and performing proper, scheduled maintenance.

Noxious weeds

Noxious weed identification, control and regulations must be taught in accordance with California Department of Food and Agriculture (CDFA) guidelines.

The Integrated Pest Control Branch of the California Department of Food and Agriculture has developed Weed Education (Weed Ed) outreach products.

See the CDFA's Encycloweedia web site for information and links:
http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/encycloweedia_hp.htm

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5.2.1 Training, Continued

Pesticide laws and chemical safety

Instruction regarding pesticide laws and safety must conform to guidelines developed by The California Department of Pesticide Regulation (DPR).

The DPR's IPM for Schools web page (http://www.schoolipm.info/) has links to information relating to managing pests in public buildings and landscapes.

All groundskeepers must also complete the Hazard Communication and Chemical Safety training provided by BPM's Environmental Safety Health Operations Program (ESHOP). This training program is based on California Code of Regulations Title 8 section 5194 and on OSHA Standard 1910.1200.

The ESHOP training covers:
- Hazard communication law
- Material Safety Data Sheets (MSDS)
- Product labeling (NPFA and HMIS labels)
- Identification of ingredients and composition of products
- First aid measures
- Firefighting measures
- Accidental release measures
- Handling and storage
- Personal Protective Equipment (PPE)
- Disposal considerations

Irrigation system maintenance

Each Service Assistant / Groundskeeper will receive training on operation of automatic irrigation controls and IPM procedures as well as the layout and design of existing building landscape.

Consequently, each Service Assistant / Groundskeeper staff will be held accountable for attaining the skill level needed to effectively implement any needed system and maintenance changes or to address the IPM and grounds maintenance systems.

Instruction for irrigation system maintenance must include:
- Scheduling based on evapotranspiration (ET), soil sampling, and seasonal fluctuations
- Backflow prevention
- Procedure for conducting audits

5.2.2 Inventory Management

Inventory Management establishes a communication system and process to:

- Control expenditures
- Control overstocking
- Facilitate review of product to ensure methodical comparison, introduction and maintenance of sustainable products
- Establish a benchmarking and price comparisons tool for control or justification of costs
- Ensure all team members have sufficient and timely supply of all products needed to do best quality work
- Order materials, tools and supplies one time per month

5.2.3 Preventive Maintenance and Record Keeping

Data extracted from the Maximo database should be used to monitor the efficiency of the Preventive Maintenance program, service calls and inventory management.

A hard copy of all pertinent equipment information will be kept in a central office location for purposes of viewing and analyzing information to develop a profile of our maintenance program. This information can also aid in budget preparation and projections of future equipment expenditures.

All members of the East End Complex Grounds team will turn in all work orders upon completion, do not wait until the end of the month to do so for this will only impose a burden to management and office staff. All Grounds staff is to complete each job ticket in a detailed description to fully comprehend the action taken and materials used on each job that was completed. This information is to be entered into the Planning screen - Failure Reporting section - under the remarks section. For additional information please see Work Order Procedures and flow chart.

If for any reason any members of the Grounds team is unable to meet any deadlines or due dates set by your supervisor you are to notify your Supervisor / Building Manager prior to. This is essential to provide management with enough time to make the necessary adjustments needed to reassign tickets to staff in an effort to meet due dates.

5.2.4 Guidelines

The following guidelines must be followed when performing activities dealing with the exterior of the building:

- Landscape planning and design
- Drainage
- Plant selection
- Pruning
- Weed management
- Plant pest management
- Plant health
- Mulching guidelines
- Automatic irrigation systems
- Lawns and turf
- Natural/open spaces
- Noxious weeds
- Landscape waste
- Pesticide use and handling
- Maintenance Equipment
- Cleaning of Building Exterior
- Paints and Sealants

Landscape planning and design

Do the following when planning or designing a landscape:

- Evaluate physical site characteristics (e.g., soil characteristics, slope issues, and proximity to sensitive areas, etc.).
- Consider how the site will be used and how it will affect neighboring properties.
- Identify plants appropriate to site conditions, shade, water, and soil ph.
- Identify existing plants for retention or salvage, as appropriate.
- Develop a program theme with stakeholders.
- Identify maintenance impacts.
- Debrief completed project with team.

Drainage

Healthy plants are easiest to maintain when site and soil conditions are proper for the plants. Drainage patterns, slope, sun exposure, soil type, nutrients present, plant species present, and patterns of use all play a role in determining how plants will grow in a particular location.

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5.2.4 Guidelines, Continued

Drainage, continued

Most plants do not grow well in saturated soil. Plants need two types of drainage, surface and sub-surface. First, planting areas need a surface shape that has no low spots where water can puddle and a slight slope so that some water from heavy rains can run off. Second, plants need a soil profile that is well drained, where water can percolate through to below the root-zone. Properly designed drainage systems can help provide the correct environment for growing healthy plants.

The following are design guidelines to assist in site drainage plan design:

- Ensure the project manager and maintenance supervisors have provided adequate staffing and funding for ongoing maintenance of any drainage plan.
- Minimize alteration of natural drainage patterns around existing vegetation that is to be preserved.
- Conform to natural drainage patterns.
- Provide opportunities for surface runoff of water to replenish the groundwater table.
- Minimize soil erosion by dispersing water flow across the ground surface.
- Reduce water velocity and increase soil permeability with plantings and mulch.
- On steep slopes or areas that are prone to landslides, avoid using plants that require supplemental irrigation.
- Implement erosion control devices as a form of preventative maintenance, e.g., application of compost or other organic soil amendments, slope protective material, protective berms, silt fences.
- Avoid installation of permanent irrigation systems in landslide hazard areas.

Plant selection

The successful landscape or grounds maintenance of an area is dependent on the initial plant selection in the design phase. Plant selection should be guided by the following criteria:

Aesthetic and thematic schemes.

Use of indigenous native plantings should be considered first, especially in large areas. The full range of horticultural species may be appropriate for high use, high visibility landscapes.

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5.2.4 Guidelines, Continued

Plant selection, continued

Match environmental conditions of the site with the cultural requirements of the plant.

It is essential that the cultural and environmental requirements of the plants be matched with the site conditions. Healthy landscapes are easiest to maintain when site and soil conditions are proper for growing the plants chosen. Drainage, slope, sun, soil texture and structure, nutrient levels in the soil, plant species and cultivars present, and patterns of use all play a role in determining how plants will grow in a particular location.

Maintenance impacts.

Choose plants with the lowest maintenance requirements. To avoid routine pruning, select plants based on their size and shape when mature. When specific site issues override pruning concerns and when associated resource impacts are identified, plants requiring frequent pruning may be considered. Plants such as roses and sheared hedges may be appropriate for specialty gardens and selected focal points.

Pruning

To avoid routine pruning, select plants based on their size and shape when mature. When specific site issues override pruning concerns and when associated resource impacts are identified, plants requiring frequent pruning may be considered. Plants such as roses and sheared hedges may be appropriate for specialty gardens and selected focal points.

Weed management

Plant selection and placement should embrace IPM principles. Vigorous groundcovers, mulches, shade canopies and plant spacing are factors that can reduce the need for weed control. Noxious weed laws and quarantines should be followed. In existing plantings, IPM principles should be applied to weeds and other pests.

Plant pest management

In new plantings, use species and cultivars that are resistant to insect infestations and plant disease. Only in limited situations (e.g., replacement of ornamental historical plantings) should exceptions occur.

Environmental issues to be considered in plant selection include:

- Provide native wildlife habitat whenever possible, such as when adjacent landscapes currently provide habitat.
- Select plants with water needs appropriate to the site. Limit high-water-use plants to specialty plantings or where the natural water table will support the plants without supplemental irrigation.

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5.2.4 Guidelines, Continued

Plant pest management, continued

- Group plants with similar water needs together. Avoid plants that will require significant pest management.
- Select native plants or disease resistant cultivars and avoid insect-prone species.
- Avoid plant species with invasive growth or seeding habits.
- Prevent surface soil erosion by covering soil with plants or mulch.
- Select plants with similar horticultural needs for groupings.
- Avoid the use of commercial wildflower seed mixes. These tend to contain weed seeds and introduce exotic invasive plants and noxious weeds. If a seed mix is used, use only weed-free mixes from reputable local sources.

Plant health

Healthy plants are better at reducing pest infestations and out-competing weeds, and they need less water.

Use the following are guidelines for environmentally responsible maintenance of plant health:

- Plant in the fall, when feasible, to take advantage of fall and winter rains and to reduce the need for supplemental irrigation.
- Prior to planting, assess and monitor soil conditions. Soil tests are the most effective method of determining soil conditions. Monitor regularly and modify practices accordingly. If necessary, amend the soil appropriately; include organic material such as compost.
- When replanting beds or turf areas, mature compost (about 20 percent by volume) should be incorporated to a depth of 8 to 12 inches or, preferably, the full rooting depth of the plants to be installed.
- Base fertilizer applications on soil test and plant requirements. Fertilizer sources should be chosen to minimize leaching and toxicity. Natural organic and synthetic slow-release fertilizers should be considered before soluble fertilizer sources. Avoid applying phosphorus unless a soil test indicates that it is necessary.
- Avoid over-watering plants to conserve water, improve plant health and minimize leaching into surface and ground water. Over-watering is a primary cause of plant disease and demise.
- Determine the seasonal evapotranspiration (ET) rate for the site and use it to estimate the amount of irrigation water needed to replace that lost as ET.

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5.2.4 Guidelines, Continued

Plant health, continued

- Use weed-free compost, gravel and mulch materials.
- Mulch. Use of organic material as a soil topping improves soil conditions in the following ways:
  - o helps reduce evaporation
  - o improves water infiltration
  - o reduces run-off and erosion
  - o enriches soil fertility and texture
  - o immobilizes or degrades pollutants
  - o inhibits the growth of competing, nutrient-absorbing weeds

Mulching guidelines

The following are guidelines for using mulch in plantings:

- Do not apply mulches where they may migrate or leach nutrients or tannins into waterways.
- Maintaining a 2-inch minimum layer of mulch in planted areas is recommended.
- A mulch less zone around the base of tree trunks is recommended to discourage root-rotting fungi.
- Wood chips should be used whenever appropriate. On-site chipping simplifies the maintenance process by providing chips that are effective, free, readily available, and have a natural look. In addition, using wood chips generated on-site for mulch reduces the need to haul green-wastes, thereby saving energy. It should be noted that, where wood chips are used for mulch, nitrogen might need to be added (5 pounds/1000 square feet).
- Other acceptable materials include compost, shredded bark, or selected brands of commercial mulch.
- When purchasing mulch materials, specify that they should be "weed- and disease-free."
- Unless disease problems are present, allow leaf litter to accumulate upon the soil within planted areas that are not intended to have a manicured appearance.
- Prevent weed infestations by covering mulch, soil and compost piles with plastic tarps, as needed.

Automatic irrigation systems

Efficient use of irrigation water conserves water and reduces runoff. Irrigation of landscapes is one of the most publicly visible landscaping activities, reinforcing the need for effective water management by public entities. Agencies should seek the advice of their local water purveyor for conservation planning.

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5.2.4 Guidelines, Continued

Automatic irrigation systems, continued

The following guidelines will assist in conserving water for landscape maintenance:

- Identify site irrigation needs based on use, plant needs, soil permeability, and topography.
- Use water efficiently.
  - To achieve maximum efficiency, perform system maintenance and repairs. Check and repair all problems at system turn-on in the spring.
  - Inspect backflow preventors annually, consistent with state law.
  - Conduct a complete system audit during design and when major changes occur to the system.
  - Once an effective schedule is established, it should be monitored bi-weekly to avoid "brown outs."
  - Avoid irrigating in the heat of the day.
- Conserve water.
  - Reclaimed water is desirable where it is available to promote the conservation of limited potable water.
  - Cut back on irrigation as weather indicates. Use historic evapotranspiration data for your area.
  - Reduce irrigation incrementally in late summer.
  - Many planting areas can be irrigated less as the plants mature and become established. Plantings designed with native or drought tolerant species should gradually be weaned from all irrigation on a 3 to 5 year schedule. Create a permanent irrigation record system that documents where, when and how much water was used to "fine tune" a system, rather than recreate it each year.
- Create a permanent irrigation record system that documents where, when and how much water was used to "fine tune" a system, rather than recreate it each year.

Lawns and turf

Lawns and turf areas are an important subset of developed landscapes that demand specific attention regarding IPM implementation. Lawns are used for a variety of purposes. Lawn maintenance can significantly affect the environment in a negative way if not carried out with attention to proper environmental practices. The intended use of a lawn or turf area will determine many of the maintenance specifics. Healthy lawns can resist disease, pests and drought damage and can out-compete most weeds without reliance on chemicals. Properly maintained lawns also require less supplemental irrigation.

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5.2.4 Guidelines, Continued

Lawns and turf, continued

The following guidelines will assist in maintaining lawns and turf areas in an environmentally responsible manner:

1. Assess the condition of the lawn or turf. Look for turf density, turf species present, percent weed cover, and color. Healthy lawns are a medium green color. Contact the DGS for consultation on lawn conditions.
2. Determine previous maintenance schedule and assess effectiveness. Consider whether acceptable results can be achieved at lower maintenance levels or significant improvements can be realized through minor program adjustments. The following areas should be addressed:
   a) soil testing and results
   b) mowing and edging
   c) irrigating
   d) fertilizing
   e) hand weeding
   f) pesticide application
   g) aerating
   h) de-thatching
   i) overseeding
   j) drainage
3. Develop maintenance standards and threshold levels for categories of use and types of turf. For example, low use, low visibility turf areas have higher weed and pest thresholds than heavily used and high visibility lawns do. Develop maintenance schedules that reflect the assessment for each of the elements of 2 above. Use the following maintenance practices for high use turf areas:
   a) In general, mow high, mow often, and leave the clippings. Mow at correct mowing height for the grass species in the turf. Mow at least weekly in spring.
   b) Fertilize lightly in the early fall and late spring with a natural organic or slow-release fertilizer.
   c) Water deeply to moisten the root zone, but water infrequently. Lawns newly planted in spring, however, need frequent watering.
   d) Avoid using quick-release fertilizers and weed-and-feed formulations. Avoid or minimize the use of pesticides.
   e) Follow buffer recommendations contained in the Waterways section (3.A) where lawns abut streams, lakes or other waterways.
   f) Annually aerate lawns in the spring or fall to improve root development; high-use turf should ideally be aerated two to three times a year.
   g) Consider purchasing electric mulching mowers, when new machines are needed.

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5.2.4 Guidelines, Continued

Lawns and turf, continued

Some lawns are non-irrigated or minimally irrigated and brown out in the summer. Where it is possible, irrigate deeply once each summer month; this will help keep the crowns of the desired grasses alive. Continue mowing throughout the summer months to reduce the quantity of weed seeds produced.

Turf that is heavily used should be irrigated, if possible, to avoid serious degradation. Improving cultural practices such as fertilizing, overseeding, and aerating can make a lawn more drought resistant.

Natural/open spaces

Use the following guidelines to manage natural or open space lands:

Conserve wildlife habitat and foster native species. This may include restoring degraded natural areas to increase their habitat and educational values.

Maintain, enhance and restore vegetation for its ecological and wildlife habitat value and visual benefits.

Emphasize the use of drought tolerant plants and native vegetation in site development and restoration to minimize the need for irrigation and reduce damage caused by non-native species.

Use proper plant selection with regard to natural site moisture conditions.

Work with other agencies to maintain the necessary quality and quantity of water in streams and lakes to provide for plant communities, suitable fish and wildlife habitat and recreational use.

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5.2.4 Guidelines, Continued

Noxious weeds

Noxious weeds are non-native plants that are highly destructive, competitive or difficult to control. They have been introduced accidentally or as ornamentals, can impact or destroy native plant and animal habitat, reduce crop yields, poison humans and livestock, clog waterways, reduce recreational opportunities and lower land values.

State law requires both private and public landowners to eradicate certain plants, prevent seed production and prevent the spread of state listed noxious weeds. Failure to comply with the state weed control law can result in an enforcement action or civil infraction.

Contact your county Agriculture Commission regarding weed abatement techniques for your county for educational and technical assistance on identifying, controlling, and preventing noxious weed infestations:

Follow Integrated Pest Management techniques when dealing with noxious weeds:

- Prevent noxious weed problems; learn how to identify noxious weeds, learn strategies for controlling or eliminating them.
- Monitor for the presence of noxious weeds and weed damage.
- Treat noxious weed problems to reduce populations using strategies that may include biological, cultural, mechanical, and chemical control methods. Always consider human health, ecological impact, feasibility, and cost-effectiveness.
- Minimize the use of chemical pesticides by using alternative control methods and by using chemical controls correctly.
- Evaluate the effects and efficacy of noxious weed control treatments. The methods of control include pulling, repeated mowing, digging to eliminate all roots and rhizomes, cutting and bagging to remove seeds, use of landscape fabric, replanting with appropriate species, and in some cases herbicide applications. It is usually necessary to constantly check the site for newly emerging seedlings and plants missed in previous control efforts.

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5.2.4 Guidelines, Continued

Noxious weeds, continued

Additional guidelines regarding noxious weeds include:

- Learn to recognize and eliminate noxious and invasive weeds before they establish.
- Choose non-invasive species for landscapes and gardens.
- Prevent noxious weed infestations by checking vehicles, clothing and equipment for weeds and seeds.
- Remove or control weeds safely and appropriately. The most important step is to control seed production by cutting down and bagging noxious plants.
- Protect yourself when working with noxious weeds; some, such as hogweed and leafy spurge, contain toxins that can damage skin on contact.
- Replant with appropriate species to prevent weeds from returning.
- Dispose of noxious weeds and weed seeds properly. Consult with the county program (contacts above) for specific recommendations. Do not compost any noxious weed debris that may contain seeds or plant parts that might take root.
- In cases where noxious weeds may impact habitat (aquatic or terrestrial), control measures may need to be taken to restore the habitat functions.

Landscape waste

City of Sacramento services can be used for the majority of garden waste removal.

The City of Sacramento is a member of the Sacramento Greencycle project which is committed to reusing all landscape waste by composting. See http://www.sacgreencycle.com for more information.

The Capitol Park grounds department can also be contacted for recycling landscaping waste if an abnormal amount of waste accumulation is encountered.

Pesticide use and handling

Pesticides are only to be used as a last resort.

If pesticides are to be used, a Notice of Pesticide Use shall be posted for building occupant at least 72 hours prior to, but not less than 24 (notice in accordance with all labor bargaining agreements) hours prior to and following application.

See the Integrated Pest Management chapter of this manual for more information.

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5.2.4 Guidelines, Continued

Maintenance equipment

All equipment that is being used is concurrent with the Integrated Pest Management program (IPM). We have an Injury and Illness prevention program (IIPP) in place that identifies any safety or health hazards that may arise.

The building is committed to maintaining a safe and clean working environment by adhering to the following policy and guidelines:

- All equipment is inspected for operational safety prior to being used.
- All necessary safety equipment will be used during any equipment operation.
- All fuel will be stored in a designated, non-flammable container and cabinet.
- Any maintenance equipment that is found to be operating at less than the manufacturer's specified standards will be routed to the maintenance department for repair.
- All equipment maintenance and operations will be done in accordance with manufactures specifications and guidelines.
- All gas powered equipment meets Emissions standards as per EPA Air Resources Board.
- All gas powered equipment meets Sacramento Municipal Code noise standards.

In particular, the following guidelines regarding portable gasoline-powered blowers must be followed:

Portable gasoline-powered blowers (Sacramento Municipal Code section 8.68.180)

A. It is unlawful for any person to operate any portable gasoline-powered blower on residential property or within two hundred (200) feet of residential property, except between the hours of nine a.m. and six p.m. Monday through Saturday and between the hours of ten a.m. and four p.m. on Sunday.

Continued On Next Page

5.2.4 Guidelines, Continued

Maintenance equipment, continued

B. It is unlawful for any person to operate any portable gasoline-powered blower on residential property or within two hundred (200) feet of residential property during the hours permitted by subsection A of this section if the blower creates noise exceeding the following specified levels measured at a distance of fifty (50) feet from the blower:

1. Blowers purchased or otherwise acquired between May 15, 1992, and November 15, 1995, shall not exceed seventy (70) dba.
2. Blowers purchased or otherwise acquired after November 15, 1995, shall not exceed sixty-five (65) dba.
3. Blowers in use on or before the effective date of the ordinance codified in this chapter or purchased or otherwise acquired before May 15, 1992, shall not exceed seventy (70) dba after November 15, 1993. (Prior code § 66.02.213).

Cleaning of building exterior

Exterior window cleaning services are conducted by River City Maintenance. The cleaning is done on an annual and semi annual basis. The chemical used for this cleaning is known as Joy® liquid detergent.

MSDS Information for Joy liquid detergent:

- Steps If Matl Released/Spill: FLUSH DOWN ACCEPTABLE SEWER (CONTAINS BIODEGRADABLE SURFACTANTS).
- PREVENT LARGE SPILLS FROM REACHING A WATERWAY.
- SORBENTS MAY BE USED.
- Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
- Waste Disposal Method: DISPOSAL IS TO BE PERFORMED IN COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. SMALL HOUSEHOLD QUANTITIES MAY BE DISPOSED OF IN SEWER. FOR LARGER QUANTITIES, INCINERATION IS PREFERRED. DO NOT LANDFILL.
- Precautions-Handling/Storing: NO UNUSUAL PRECAUTIONS NECESSARY.
- Other Precautions: DO NOT MIX WITH CHLORINE BLEACH AS HAZARDOUS FUMES MAY RESULT.

The exterior areas such as sidewalks and walkways are routinely cleaned (monthly) by facilities staff using mechanical pressure washing equipment.

Paints and sealants

Use only environmentally-friendly products that contain zero (0) Volatile Organic Compounds (Zero VOC).

6 Purchasing

Introduction

California law requires State government to practice Environmentally Preferable Purchasing (EPP). See Public Contract Code, sections 12400-12404 for more information.

All materials purchased for buildings managed by BPM must conform to EPP guidelines. EPP guidelines are maintained by the California Integrated Waste Management Board (CIWMB) and are published on the Green California web site: www.green.ca.gov.

At the Green California web site, see the EPP Best Practices Manual for guidance when purchasing products. The Best Practices Manual will help you to:

- Choose more environmentally preferable products and services in numerous categories.
- Locate surplus and reuse programs to obtain low-cost or used equipment and supplies.

Chapter contents

The table below lists sections included in this chapter.

6.1 Reduced Mercury Light Bulbs

The State currently has an Environmentally Preferable Purchasing (EPP) Contract (#1-06-62-31) for replacement lamps. This contract closely follows the European RoHS Standard and specifies low mercury, high lumen, and long life fluorescent lamps.

This EPP contract is mandatory for all state agencies and offers products that are capable of meeting the 100 picogram/lumen-hour requirements for obtaining LEED/EB credits.

This contract also includes provisions for recycling waste lamps and purchasing energy efficient T-8 lamps and matching ballasts for retrofit from older T-12 technology.

Refer to the EPP Best Practice manual at www.green.ca.gov for purchasing policy and additional information.

6.2 Products with Salvaged or Recyclable Materials

Introduction

The State Agency Buy Recycled Campaign (SABRC) requires that every State department, board, commission, office, agency-level office, and cabinet-level office must:

- Require that all suppliers certify the recycled content of their products.
- Purchase products that contain recycled materials.
- Attain recycled-content product (RCP) procurement mandates.
- Report RCP purchases.

Certifying Recycled Content

Every product, material, good, or supply must have its recycled content certified by the supplier.

The supplier must certify the minimum percentage of:

- The postconsumer material in the product
- The secondary material in the product

Postconsumer material

Postconsumer material comes from products that were bought by consumers, used, and then recycled. For example, a newspaper that has been purchased and read, then recycled, and used to make another product would be postconsumer material.

Secondary material

Secondary material consists of fragments of finished products of a manufacturing process. Examples of secondary material include paper trimmed from an oversized roll in the printing plant and a rough edge trimmed from a molded plastic product. These excess materials are recycled prior to the finished product reaching a consumer. Therefore, that material would be secondary material (also referred to as preconsumer or postindustrial material) as opposed to postconsumer material.

Copies of recycled content certification form(s) and/or other certification documentation must be obtained and kept on file. Use form number CIWMB 74, available on the CIWMB web site at: http://www.ciwmb.ca.gov/BuyRecycled/StateAgency/Manual/default.htm#CIWMB74

Periodically, agencies will be required to submit copies of certification documentation with their procurement reports.

Continued On Next Page

6.2 Salvaged or Recyclable Materials, Continued

Purchasing Products That Contain Recycled Content

Consult the CIWMB Recycled-Content Product (RCP) Directory before making any purchase of:

- Office paper
- Office equipment
- Furnishings
- Furniture
- Building materials

The Recycled-Content Product Directory is available on the CIWMB web site: http://www.ciwmb.ca.gov/RCP/.

Tips for using the RCP directory

- When searching a product category, click the **SABRC Cert** column heading to locate those products that are SABRC certified or compliant.
- The **TRC** column heading shows Total Recycled Content percentages.
- The **PC** column heading shows Post-consumer Content percentages.

Building materials

Recycled content requirements must be specified in any contractor/subcontractor agreement.

Attaining RCP Mandates

State agencies must spend a specified minimum percentage of dollars on products that meet the minimum recycled content requirements.

The table below lists product categories that fall under recycled content requirements. See the SABRC web site for details: http://www.ciwmb.ca.gov/BuyRecycled/StateAgency/Buying.htm

The required minimum procurement goal is 50 percent of all the funds the agencies spend in the product categories listed below (with the exception of printing and writing paper, for which the minimum required expenditure is 25 percent of dollars). For example, if an agency spends $100,000 per year on plastic products, at least $50,000 must have been spent on plastic products that meet the minimum recycled-content requirements.

Product Category	Minimum RCP Procurement Requirement (dollars spent)	Minimum Recycled Content Requirement
Printing and writing papers	25%	30% post-consumer
Paper products	50%	50% overall; 10% post-consumer

Continued On Next Page

6.2 Salvaged or Recyclable Materials, Continued

Product Category	Minimum RCP Procurement Requirement (dollars spent)	Minimum Recycled Content Requirement
Plastic products	50%	50% overall; 10% post-consumer
Compost/co-compost	50%	50% overall; 10% post-consumer
Glass products	50%	50% overall; 10% post-consumer
Lubricating oils	50%	70% re-refined base oil
Paint	50%	50% post-consumer
Solvents	50%	70% post-consumer
Tires	50%	50% overall; 10% post-consumer
Tire-derived products	50%	50% post-consumer
Steel products	50%	50% overall; 10% post-consumer
Antifreeze	50%	70% post-consumer

Note: Products that are refurbished, remanufactured, or reused are always considered recycled products, regardless of whether or not they meet the minimum content requirements.

Reporting RPC Purchases

All State agencies must submit an annual report on products purchased in reportable product categories.

All products purchased (recycled content or not) in the above 12 categories must be included in the annual report. The products purchased that meet the recycled-content mandates must be reported as well.

The CIWMB provides a training manual and Procurement Report Worksheet to aid the reporting. See the Reporting on Buying Recycled section of the CIWMB web site for more information:
http://www.ciwmb.ca.gov/BuyRecycled/StateAgency/Reporting.htm

6.3 Indoor Air Quality (IAQ) Products

Introduction

The IAQ products policy covers the following product groups:

- Paint and coatings
- Adhesives
- Sealants
- Carpet
- Composite panels
- Agrifiber products
- Building materials used inside the building

Product evaluation policy

Whenever a building material purchase is required, BPM first receives a Material Safety Data Sheet (MSDS) or manufacturer specification and reviews the emissions rates for any volatile organic compounds (VOCs) in the product.

The BPM Environmental Safety and Health Operations Program (ESHOP) reviews the MSDS sheet and manufacturer specification to verify that the product is consistent with LEED-EB purchase requirements.

BPM then purchases VOC compliant-building materials as listed above for any project inside the building to improve the emission profile of the building.

Purchases made in this manner lessen tenant-related indoor air quality complaints. Indoor air quality management in State Office Buildings is managed by the BPM ESHOP in accordance with State, Federal, and local air quality management requirements.

Purchasing guidance

Refer to the State Agency Buy Recycled Campaign (SABRC) and EPP Best Practices manual at www.green.ca.gov for the policy and additional information.

6.4 Green Cleaning Products

Product evaluation policy

In January 2000, the Department of General Services (DGS) Real Estate Services Division (RESD) Building and Property Management Branch (BPM) created an environmentally preferable purchase (EPP) charter team in an effort to implement sustainable measures into cleaning chemical purchases for State Office Buildings.

Since 2000, vendors that contact BPM management and custodial staff are required to submit a Material Safety Data Sheet (MSDS) on the toxicity and chemical content of cleaning products. These MSDS are then reviewed by the BPM Environmental Safety and Health Operations Program (ESHOP).

Cleaning product manufacturers and vendors are required to submit MSDS information regarding product ingredients, characteristics, and packaging, as well as information on available product and application training. Once the product review process is complete, BPM purchases green cleaning chemicals that are consistent with products that meet the Green Seal GS-37 standard, if applicable, and/or the California Code of Regulations maximum allowable VOC levels.

In addition to chemical purchases, the BPM purchases disposable janitorial paper products and trash bags that meet the minimum requirements of U.S. EPA's Comprehensive Procurement Guidelines.

Purchasing guidance

Refer to the State Agency Buy Recycled Campaign (SABRC) and EPP Best Practices manual at www.green.ca.gov for the policy and additional information for purchasing:

- Green cleaning products
- Plastic trash can liners
- Janitorial paper products

7 Waste and Recycling Management

Introduction

Assembly Bill 75 (Strom-Martin, Chapter 764 of statues of 1999) requires State agencies to develop and implement integrated waste management plans to reduce the amount of solid waste disposed of by 25% by January 1, 2002, and 50% by January 1, 2004. The law also requires State agencies leasing or constructing State facilities to ensure adequate space is set aside for the storage and collection of materials.

In addition, the law requires all State agencies to annually report to the CIWMB the amount of solid waste generated and the amount of solid waste diverted from disposal. These reports are posted on the CIWMB web site and can be accessed by opening a web browser and navigating to:

http://ciwmb.ca.gov/StateAgency/SOARD/

The implementation of integrated waste management plans and annual reporting requirements compel each State agency to:

- Implement purchasing and source reduction strategies
- Install collection station equipment develop recycling are guidelines, and
- Communicate the availability of recycling services to building occupants.

Chapter contents

The table below lists sections included in this chapter.

7.1 Organizational Integrated Waste Management Plan

The Integrated Waste Management Plan developed for the building must be followed to ensure compliance with AB 75 reporting requirements as well as regulatory and legislative mandates.

The Department of Education has an Integrated Waste Management Plan that applies source reduction, reuse, and recycling to minimize waste disposal.

7.1.1 Promotional Programs

The Department of Education has developed and maintains documents that promote sustainable waste reduction practices and instruct building occupants to use recycling equipment and facilities.

The following documents are produced and distributed:
- Facts Sheets
- Fliers
- New Employee Package
- Office Paper Recycling Guide
- Web Page

7.1.2 Procurement Programs

All State agencies must follow the procurement policies and standards set by the Department of General Services, Procurement Division.

In order to ensure that the Department of Education complies with stated policies and standards, the Department utilizes the following:
- Department-wide Automated Procurement Tracking System
- Department-wide Recycled-content Procurement (RCP) Policy

The Department of Education also:
- Proactively works with RCP suppliers
- Requires Recycled-Content Product certification for all purchases

7.1.3 Source Reduction Strategies

Preventing waste at its source, by avoiding the acquisition of disposable items or making potentially disposable products as useful as possible for as long as possible, is the most efficient and practical way to reduce disposal costs and mitigate environmental impacts.

Source Reduction Strategies

The source reduction strategies listed below involve behavioral or procedural changes that prevent the creation of waste.

- Purchase products in quantity and in recycled containers.
- Eliminate unnecessary reports and reduce report size.
- Eliminate unnecessary forms and redesign to use less paper.
- Print double-sided copies to minimize the number of copies produced.
- Proof documents on screen and preview before printing.
- Design mailers which avoid the use of envelopes (fold and staple the paper).
- Use electronic mail and voice mail.
- Post announcements on bulletin boards or circulate copies.
- Circulate memos, documents, reports, and publications.
- Allow internal documents to be circulated with legible minor hand corrections rather than retyping drafts.
- Make double-sided photocopies when feasible.
- Direct employees to web site links vs. provide paper copies.
- Create and use electronic forms (ABMS, TEC, others).
- Produce double-sided copies.
- Practice property reutilization – Surplus Equipment to Surplus Sales.
- Adhere to Recycled Content Product Purchases policies.

Electronic Data Correspond-ence

Electronic correspondence reduces or eliminates paper and printing. Some strategies include:

- Electronic publishing of departmental manuals (e.g. intranet web pages)
- E-Office of Legal Services Contract Billing
- E-Legal Research (West and Lexis)
- E-Legislative Reports posted on web site
- E-Legislative memos to Agency

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7.1.3 Source Reduction Strategies, Continued

Reuse Strategies

- Collect paper that has been used on one side and reuse as draft paper in fax machines, for scratch pads, and copies (in copiers with multiple trays, one tray can be stocked with draft paper).
- Buy only copiers and printers that will make two-sided copies reliably.
- Use reusable envelopes for interoffice mail.
- Use outdated letterhead for in-house memos.
- Reuse file folders.
- Print directly on envelopes rather than use labels.

7.2 Universal Hazardous Waste

Introduction

Because certain types of hazardous wastes are generated by a wide variety of businesses, they have been classified by the U.S. EPA and California's Department of Toxic Substances Control as "Universal Wastes" when they are disposed. Universal Wastes include mercury-containing thermostats, cathode ray tubes (CRT) such as computer monitors and TV sets, certain lighting wastes such as fluorescent tubes, and virtually all batteries.

Source reduction of hazardous waste is preferable over recycling and treatment options because source reduction avoids waste generation costs and management liability.

Fluorescent Light Tubes

Fluorescent light tubes contain mercury and must not be disposed of using general waste receptacles such as dumpsters.

BPM staff collects all used fluorescent tubes used in the building for recycling. The tenants must not store or dispose of any fluorescent light tubes.

BPM. Trades and Engineering staff must:

1. Collect used fluorescent light tubes
2. Store used fluorescent light tubes in the secure area designated for light tube storage so that they will not inadvertently break.
3. Mark the manifest with the number of tubes added to storage each time a tube is added.
4. Schedule pickup by the designated, certified recycling hauler when the storage area is near capacity.

Batteries

Battery collection and recycling at the Department of Education is done by the group who uses batteries. Each group is responsible for setting up their own battery recycling program. Batteries are used and collected for recycling by:

- BPM employees
- Tenants

Continued On Next Page

7.2 Universal Hazardous Waste, Continued

Batteries, Continued

BPM employees

1. BPM employees collect their own batteries.
2. Batteries are stored in buckets and boxes distributed by DGS BPM HQ division.
   Note: Due to the substantial costs associated with the recycling or disposal of batteries, only those batteries generated from daily work will be accepted. No batteries from home may be recycled using workplace recycling programs.

Tenants

The Department of Education runs its own battery collection program and uses its own certified hauler.

7.3 Recycling Area Guidelines

Introduction

The DGS Integrated Waste Management Plan ensures that all building occupants, including maintenance staff, tenants, and visitors, have opportunities to recycle.

Recyclables collected from the building are delivered to the recycling area, where they are separated.

Hazardous waste items such as batteries and fluorescent light tubes are not to be stored or disposed of in the recycling area.

Recycling

Items that are recycled as part of the recycling program include:

- Cardboard
- Newspaper
- Office paper
- Printer cartridges
- Aluminum cans

Building Guidelines

See the following Building Guideline regarding recycling.

Continued On Next Page

7.3 Recycling Area Guidelines, Continued

CALIFORNIA DEPARTMENT OF EDUCATION

Building Guidelines	BG NUMBER: **04-001 (Revised)**
East End Complex 1430 N Street Sacramento, CA 95814	DATE REVISED: **APRIL 2006**
	EXPIRES: **When rescinded**

SUBJECT:	Recycling
PURPOSE:	To establish guidelines for and to promote the recycling of materials
GUIDELINES:	1. Recycling containers are located throughout the building in copy rooms and kitchenettes. 2. The green containers are to be used for recycling glass, plastic, and aluminum cans. Employees should remove the lids and rinse all bottles and cans before placing them in the recycling containers. 3. Food wrappers should be disposed of in garbage cans and not placed in recycle containers. 4. The blue "Slim Jim" containers are to be used for recycling white paper. White paper consists of white bond laser paper, typing paper, letterhead, white envelopes without windows, adding machine tape, and computer paper. 5. The containers with the blue slotted lids are to be used for recycling mixed paper. Mixed paper consists of newsprint, colored paper, magazines, glossy paper, junk mail, tabulating cards, manila folders, pamphlets, brochures, and fax paper. 6. Staples and paper clips **do not** need to be removed before papers are placed in a recycling container. 7. Non-recyclable paper consists of carbon paper, Post-it Notes, self-adhesive labels, cellophane tape, laminated paper, paper ream covers, photographic paper, and blueprint paper. These materials should not be placed in any of the recycling containers. 7. Corrugated cardboard should be stacked neatly outside a cubicle area with a sign marked "Garbage." The janitorial staff will deliver the cardboard to the loading dock for recycling. 8. Specially designed boxes for the containment of recycled batteries are located in the main mailroom (Room 1601), 1430 N Street and in the Nutrition Services Division, 560 J Street, Suite 270. These boxes are designed to hold a variety of batteries made of lithium, alkaline, lead, mercury, nickel-cadmium, nickel metal-hydride, magnesium, silver, and zinc. The battery recycling program includes batteries of sizes AAA, AA, C, D, button cell, 9-volt, and all other batteries, both rechargeable and single use. Before batteries can be dropped into the boxes they must be placed in a plastic bag. Plastic bags can be found next to each battery recycle box.

8 Construction and Renovation Policies

Introduction

Building and Property Management (BPM) is expected to integrate sustainable and green building practices in its coordination with other State agencies during construction and renovation.

All construction and renovation plans must address the following:

- Asbestos management
- PCB management
- Construction IAQ
- Building space churn renovation
- Construction waste

Chapter contents

The table below lists sections included in this chapter.

8.1 Asbestos Management Plan

Introduction

Department of General Services Management Memo 06-01 (MM 06-01) states that, pursuant to State Administrative Manual (SAM) Section 2591, State agencies which occupy buildings constructed prior to 1980 (that are known to contain asbestos) must provide written notification to employees annually as to the presence of Asbestos Containing Materials (ACM) in those buildings.

The annual notification process generally occurs in January of each year, based on prior notices.

New employee notification

New employees shall be informed about asbestos conditions in the building(s) in which they will work within the first 15 days of their employment.

Standard Form 250, Employee Asbestos Notification, has been developed for notification purposes and is available from the Office of Procurement, Materials Services Section.

Supplemental notification

All employees working in an area where asbestos abatement work is pending shall be provided a supplemental notice, if new information concerning ACM has been obtained.

This supplemental notice must be provided within 15 days, or prior to the end of the calendar quarter in which the new information was received.

8.1.1 Management Memo 06-01

STATE ADMINISTRATIVE MANUAL

MANAGEMENT MEMO

NUMBER: MM 06-01

SUBJECT: **ASBESTOS NOTIFICATION TO EMPLOYEES**

DATE ISSUED: JANUARY 2, 2006

EXPIRES: JANUARY 2, 2007

REFERENCES:
SUPERCEDES MANAGEMENT MEMO 05-02 DATED JAN. 2005
Health and Safety Code Section 25915 et seq.
State Administrative Manual Section 2591

ISSUING AGENCY:
Department of General Services

Pursuant to State Administrative Manual (SAM) Section 2591, State agencies which occupy buildings constructed prior to 1980 (that are known to contain asbestos) must provide written notification to employees annually as to the presence of Asbestos Containing Materials (ACM) in those buildings. The annual notification process generally occurs in January of each year, based on prior notices.

New employees shall be informed about asbestos conditions in the building(s) in which they will work within the first 15 days of their employment.

All employees working in an area where asbestos abatement work is pending shall be provided a supplemental notice, if new information concerning ACM has been obtained. This supplemental notice must be provided within 15 days, or prior to the end of the calendar quarter in which the new information was received.

Please refer to SAM Section 2591 for notification requirements and procedures. Standard Form 250, Employee Asbestos Notification, has been developed for this purpose and is available from the Office of Procurement, Materials Services Section.

Assistance for all State agencies is available from the following offices of the Department of General Services:

8.1.2 Notification Form STD 250

STATE OF CALIFORNIA - GENERAL SERVICES HUMAN RESOURCES

EMPLOYEE ASBESTOS NOTIFICATION

STD. 250 (REV. 3/2002)

DEPARTMENT NAME

This is to notify employees working at:

ADDRESS

Effective January 1, 1989, Assembly Bill 3713, Chapter 1502, Statutes of 1988, Health and Safety Code, Subsection 25915 et seq., requires State agencies which occupy buildings constructed prior to 1979, and know of the presence of asbestos-containing materials (ACM) in the building, to provide written notification to employees within 15 days of knowledge. Employees new to the building shall be provided this information within 15 days of commencing work in the building. Please refer to the State Administrative Manual Section 2591.

Airborne asbestos levels in buildings are much lower than those in industrial workplaces where serious health effects such as lung cancer and asbestosis have been observed. However, it is important for employees to follow proper work practices to minimize the potential for disturbing ACM. Avoid touching asbestos materials on walls, ceilings, pipes, or boilers. Do not drill holes, hang plants or other objects from walls/ceilings made of ACM. Do not disturb ACM when replacing light bulbs. **If you find ACM that has been damaged, report it to your supervisor. Do not disturb damaged asbestos material or asbestos debris.** Only persons authorized and properly trained should perform any work which may disturb asbestos materials.

Asbestos-containing materials pose no threat to your health unless asbestos fibers become airborne due to material aging, deterioration, or as the result of some damage. Asbestos conditions may vary, and where ACM have been identified in State building surveys, the materials were generally in good condition, enclosed, encapsulated, or of a type not likely to release fibers unless disturbed.

Any employee may review the asbestos survey report, results of bulk sampling, or air monitoring conducted in this building. All asbestos-related data will be available during normal business hours at the building manager's office located at: DEPARTMENT NAME

ADDRESS

I, _____, have read and received a copy of the Employee
(Please Print Name)

Asbestos Notification.

EMPLOYEE SIGNATURE DATE

DISTRIBUTION: ORIGINAL - PERSONNEL FILE; COPY - EMPLOYEE

8.1.3 Annual Notification Form Example

January 2006

ASBESTOS NOTIFICATION LETTER

The purpose of this letter is to notify employees working at the

East End Education Building (049) 1430 N Street, Sacramento, California 95814

The Department of Education was constructed without the use of Asbestos Containing Materials (ACM). The contractor who performed this work did not incorporate ACM related components associated with the building components during the construction period. This information is on file in the Building Manager's Office.

Asbestos containing materials are not harmful unless asbestos fibers become airborne due to material aging, deterioration, or as the result of some damage. The ACM identified in State building surveys were generally in good condition and not likely to release fibers unless disturbed. Specific locations where ACM have been found are listed below.

It is important for employees to take the following precautions and minimize the potential for disturbing ACM:

1) Avoid touching ACM on walls, ceilings, pipes, or boilers. Do not drill holes, hang plants, or other objects from walls/ceilings which contain asbestos;

2) Do not disturb damaged ACM or asbestos debris; and

3) Report any damaged material or suspect debris to the Building Manager immediately. Only persons authorized and properly trained should perform any work which may disturb asbestos materials.

Any employee may review the asbestos survey report, and the results of bulk sampling or air monitoring conducted in this building. All asbestos-related data will be available during normal business hours in the Building Manager's office.

Asbestos containing materials have been identified in the following location(s):

Within the sealed "Decorative Serpentine Rock" located in the lobby

If you have any questions, contact your Supervisor, Building Manager or, Departmental Asbestos Coordinator for additional information.

8.2 PCB Management Plan

Introduction

During the 1970's, Polychlorinated Biphenyl (PCB) substances were determined to be toxic, and when contaminated with dibenzofurans and diebenzotoxins as occurs at elevated temperatures are extremely toxic.

Consequently, the manufacture, use, storage and disposal of PCB substances and contaminated solids or fluids of any type are strictly controlled by regulations (40 CFR 761, final ban, et seq.) administered by the Environmental Protection Agency under provisions of the Congressional Toxic Substance Control Act of 1976.

State PCB removal program

The State of California funded and initiated a comprehensive statewide program to replace PCB-contaminated electrical distribution equipment in 1981. The PCB program included twenty major departments statewide and was concluded in 2000. During this twenty-year program, over 1,800 major items of electrical equipment were replaced or retro-flushed with environmentally acceptable equipment and fluids at a cost of approximately $30 million.

Building compliance

The Department of Education Building at 1430 N Street was constructed more than twenty years after the congressional and EPA ban on the manufacture and distribution of PCB. All building electrical and mechanical systems as well as other building materials were new at the time of construction, which was completed in 2004. No equipment or items likely to contain PCBs have been moved into the building from other locations.

8.3 Construction and Demolition IAQ Plan

Introduction

The intent of this policy is to avoid exposure of building occupants, in state owned or state occupied buildings, to potential hazardous chemical, biological, and particle contaminants which adversely impact air quality, health, building finishes and systems, and the environment.

Indoor air quality post-construction hinges on performance during construction. Regardless of the project delivery mechanism the general contractor must develop and implement an IAQ Management Plan for the construction process. In some cases the architect may provide a draft plan that the contractor then tailors to the situation. In other cases the contractor is charged with creating the plan in order to keep the roles and responsibilities perfectly clear.

For each project, review the applicability of each control measure and include those that apply in the final construction and Demolition Indoor Air Quality Management Plan. See Appendix E – Construction Indoor Air Quality Specification for an example of contract specifications that should be followed.

The Construction and Demolition IAQ Management Plan must be reviewed and approved by the Project Manager prior to the initiation of any construction or demolition work. The Contractor must ensure that all participants in the construction process are aware of the IAQ procedures and understand the importance of the goals of the Construction and Demolition IAQ Management Plan. Construction-related IAQ procedures should be included in the pre-construction and construction progress meeting agendas. The Contractor and Project Manager are jointly responsible for monitoring the construction site to identify IAQ problems and require mitigation as necessary.

Several control measures may be necessary to maintain good indoor air quality during construction. The intent is to prevent indoor air quality problems resulting from the construction or renovation process, to sustain long term installer and occupant health and comfort. The control measures required in this project are described below.

The policy and plan address the protection of the ventilation system components during construction and cleanup of contaminated components after construction is complete. These construction-related IAQ procedures shall be included in the pre-construction and construction progress meeting agendas. In addition, the plan will require temporary ventilation in the General Conditions of the construction contract and ensure that all participants in the construction process are aware of the IAQ procedures and understand the importance of the goals of the IAQ Management Plan.

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8.3 Construction and Demolition IAQ Plan, Continued

Introduction, continued

This plan covers:
- HVAC system protection
- Contamination control
- Pathway interruption
- Housekeeping
- Scheduling
- Building air flush out

8.3.1 HVAC System Protection

All HVAC equipment must be protected from collecting dust and odors during the construction process. The following measures shall be utilized to protect the following HVAC equipment and air distribution systems:
- Return side
- Central filtration
- Supply side
- Equipment protection
- Duct cleaning

Return side

The return side of the HVAC system (which is by definition ductwork under negative pressure) shall be shut down whenever possible during heavy construction or demolition.

The return side shall also be isolated from the surrounding environment as much as possible (e.g., replace all tiles for the ceiling plenum, repair all duct and air handler leaks) and shall be fitted with temporary filters if the system must remain operational during construction.

The return side shall have the heaviest work areas dampered off and return system openings shall be sealed with plastic.

Central filtration

In areas where major dust loading is expected to impact operating HVAC systems that serve areas on the building that were affected by the construction process, install new clean media just prior to substantial completion and occupancy.

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8.3.1 HVAC System Protection, Continued

Supply side

Where possible the supply system or branch serving the construction area should be shut off or dampered off and supply diffusers sealed in plastic.

At the completion of construction, prior to occupancy, the contractor shall observe diffusers for deposited particulates.

Clean discharge diffuser dust prior to occupancy and restoring the supply side branch operation.

Equipment protection

HVAC equipment and components (such as air handlers and return fan units) that are to be installed during the construction process shall be protected from dust contamination.

Entire units and their inlet and discharge openings shall be protected by plastic during the construction process when stored in areas that can be contaminated by construction odor and dust.

Duct cleaning

If the systems exposed to construction and dust and or motor contamination become contaminated due to inadequate protection during construction, the ducts and associated equipment should be cleaned prior to occupancy.

8.3.2 Contamination Control

Sources of contamination

Many activities during the construction process produce odor and dust. Dust is produced during the following activities:

- cutting
- drilling
- sawing
- sanding
- rasping

The following activities produce combustion products and particulates:

- welding
- cutting using torches
- sawing using chain saws
- heating using temporary heaters
- soldering

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8.3.2 Contamination Control, Continued

Mitigation strategies

When conducting the above activities during the construction process, source control and pathway interruption isolation strategies shall be used to isolate, minimize, and reduce the introduction of particulate and odors in the construction space.

Whenever possible, cutting, drilling, sawing, and sanding should be conducted out of doors or in areas where HVAC systems cannot be compromised.

When welding or using internal combustion powered tools during the construction process shall be done in areas where dust and emissions can be captured and exhausted using temporary exhaust systems.

Smoking shall be prohibited in all areas inside the building.

8.3.3 Pathway Interruption

During construction, isolate areas of work to prevent contamination of clean or occupied spaces.

When possible use 100% outside air ventilation (depending on climate) with air exhausted directly to the outside during installation of finishes and other VOC emitting materials and performance of activities that generate dust or odor.

Pressure differential can be used to prevent unwanted airflow from dirty to clean areas. This requires the erection of barriers between work areas or between the inside and outside of the building. Where possible, erect barriers such as dust curtains or plastic sheets between work areas to prevent unwanted air flow from dirty to clean areas.

8.3.4 Housekeeping

Housekeeping

Reduce construction contaminants in the building prior to occupancy through regular space cleaning activities.

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8.3.4 Housekeeping, Continued

Housekeeping continued

All building materials and equipment to be installed shall be stored in weather tight, clean areas prior to unpackaging for installation.

Check for possible damage to the system from high humidity. All coils, air filters, and fans shall be cleaned before testing and balancing procedures are performed and especially before baseline air quality tests are conducted (if applicable).

Construction areas should be cleaned a regular intervals to suppress and control the distribution of contaminants generated during the construction process. Remove spills of construction materials and or accumulated water as soon as possible.

8.3.5 Scheduling

Specify construction sequencing to reduce absorption of VOCs or contamination by construction dust or emissions by materials that act as sinks or contaminant sources.

Complete application of wet and odor-emitting materials such as paints, sealants, and coatings before installing sink materials such as ceiling tiles, carpets, insulation, gypsum products, and fabric-covered furnishings are installed.

Materials that are susceptible to microbial growth shall be protected from exposed to moisture through precipitation, plumbing leaks, or condensation from the HVAC system contamination.

8.3.6 Building Air Flush Out

After construction ends and prior to occupancy, a building air flush out must be performed. Use either the standard or alternative approach.

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8.3.6 Building Air Flush Out, Continued

Standard approach

The standard approach for performing a building air flush out is as follows:

1. Conduct a minimum two-week building flush out with new filtration media at 100% outside air.
2. Maintain relative humidity levels below 65% during building flush out.
3. Provide a letter from the architect, engineer or contractor describing building flush out procedures including actual dates of building flush out.

Alternative approach

An alternative approach to assuring air quality prior to occupancy is to measure and verify acceptable pollutant levels. This approach will use nationally accepted air quality standards taking into account outdoor air levels.

Air sample testing shall be conducted as follows:

- Randomly select sampling points for every 25,000 square feet, or for each contiguous floor area, whichever is larger, to measure the maximum concentration levels for the chemical contaminates as listed below:

Chemical Contaminant	Maximum Concentration
Carbon Monoxide (CO)	9 parts per million
Formaldehyde	0.05 parts per million
Particulates (PM10)	20 micrograms per cubic meter above outside air conditions
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
4-Phenylcyclohexene (4-PCH)	3 micrograms per cubic meter

- Conduct measurements of the building ventilation system starting at normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout duration of the air testing.

- Test with time weight values of four hours with data logging.

- For each building area where the maximum concentration limits are exceeded, conduct a partial building flush out, for a maximum of two weeks, then retest the indoor air quality levels to indicate the requirements are achieved. When re-testing non-complying building areas, take samples from the same locations as in first test.

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8.3.6 Building Air Flush Out, Continued

Alternative approach, continued

- Copies of the IAQ testing results shall describe the contaminate sampling and analytical methods, the locations and duration of continuous samples, the field sampling log sheets and laboratory analytical data, and the methods and results utilized to determine that the ventilation system was started at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode through the duration of the air testing.

- Provide a letter from the architect, engineer or contractor describing the procedure and summarizing the outcome with a copy of the IAQ testing results indicating that the maximum chemical contaminate concentration requirements are not exceeded.

8.4 Building Space Churn Renovation Plan

Introduction

The Building Space Churn Renovation Plan contains requirements for spatial modifications or "churn" as a result of building occupant movement and re-allocation. The goal is to achieve a direct line of site to windows from 90 percent of all occupied spaces.

The Department of General Services is committed to providing working environments that are conducive to employee efficiency and well-being.

As such, it is the policy to provide a visual connection between regularly occupied spaces and natural daylight and views.

Policy

The Real Estate Services Branch will provide a minimum of 45%, and a goal of 90%, of the regularly occupied spaces with a visual connection to natural daylight vision glazing between 2’-6” and 7’-6” above the floor.

Low-use and low-occupancy support spaces need not comply such as:

- copy rooms
- storage areas
- file spaces
- mechanical and electrical rooms
- corridors, etc.

Additionally, spaces with the need to control lighting are exempted, such as auditoriums, multimedia rooms and large conference rooms.

8.5 Construction Waste Management Policy

Introduction

Construction and demolition (C&D) waste accounts for approximately 22% of overall waste in California landfills, according to a December 2004 waste characterization study by the California Integrated Waste Management Board (CIWMB).

Since 2004, all California state agencies have been required by law to recycle or divert at least 50% of their waste. They must also report their annual recycling and diversion rates to ensure that the 50% diversion goals are being met. See the CIWMB web site (http://www.ciwmb.ca.gov/StateAgency/) for more information

Many different waste materials can be recycled or diverted, including all types of metal, glass, wood, plastics (including carpet), excess paint, concrete, brick and other masonry, asphalt, roofing, and many other materials.

8.5.1 Policy

Construction and demolition (C&D) activities shall recycle and/or divert at least 50% and preferably 75% of waste materials, removing it from the waste stream.

Waste categories appropriate for diversion from landfill shall include, but not be limited to, the following:

1. Land clearing debris
2. Soil
3. Wood: Clean dimensional wood, palette wood
4. Sheet Wood: Plywood, OSB and particle board
5. Concrete
6. Bricks
7. Concrete Masonry Units (CMU)
8. Asphalt Concrete
9. Paper
    a. Bond
    b. Newsprint
    c. Cardboard and paper packaging materials
10. Cement Fiber Products: Shingles, panels, and siding

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8.5.1 Policy, Continued

Policy, continued

11. Metals
    a. Ferrous
    b. Non-ferrous
12. Paint
13. Rigid Foam
14. Glass
15. Plastics
16. Carpet and pad
17. Beverage containers Insulation
18. Gypsum Board
19. Porcelain Plumbing Fixtures
20. Fluorescent Light Tubes (per Dept. of Toxic Substances Control regulations)

8.5.2 Construction Contracts

Construction contracts for building and grounds work shall include requirements and forms for the contractor(s) to fill out which document the quantities of waste recycling and diversion met.

It is recommended that the contractor submit this documentation prior to receiving final payment.

See Appendix D – Example Construction Work Order and Forms for sample specification language and a sample form.

All State of California agencies are required to report annually by April 1st, on total waste and recycling quantities in an AB 75 (SOARD) report. Facilities managers compiling this data for tenant agencies are encouraged to include quantities of C&D diversion in these reports. This often helps elevate the tenant agencies' recycling results.

8.5.3 Resources

Resources

A very helpful database of California recycling facilities can be found at www.ciwmb.ca.gov/Condemo/Recyclers , that lists C&D recycling facilities by city, county, and the types of materials accepted.

California Integrated Waste Management Board
(see: www.ciwmb.ca.gov/condemo)

USEPA
(see: www.epa.gov/epaoswer/non-hw/debris-new/index.htm)

U.S. Green Building Council – LEED-EB criteria
(see: www.usgbc.org/DisplayPage.aspx?CMSPageID=221&)

9 Tenant Handbook

Introduction

This building handbook is designed for:

Department of Education
1430 N Street
Sacramento, CA 95814

The handbook contains useful information about the building's general policies, security and emergency procedures, area amenities, services, and parking operations.

This building handbook may be distributed as-is. Or, alternatively, the information within this handbook can be re-packaged and amended with additional information for use in intranet web pages, employee guidelines, etc.

The contents of this handbook in no way amend the rules and regulations of this building.

Self-guided building tour

In addition to this handbook, there is also a self-guided building tour available. To view the self-guided tour handout, click the following link:

http://www.eastend.dgs.ca.gov/GreenPage/USGreenBuildingCouncil-GreenBuildingTour.htm

Chapter contents

The table below lists sections included in this chapter.

9.1 Building Security

Introduction

The Department of General Services (DGS) provides building security through contracts with security companies.

Several levels of security have been established as follows:
- Keys and access cards
- Closed-circuit television system
- On-site security guards
- Blue-light pedestrian system
- Preventative steps

Keys and access cards

The building has been designed with security systems at all building entries, main tenant suites, common restrooms, elevators and garage arms and doors.

The security systems are comprised of:
- standard (mechanical) key/lock system
- a card key system

Building management recommends that all card keys and any mechanical keys issued to staff be maintained carefully. The cost to re-key the entire mechanical key system could be billed to the tenant in the event of loss or an employee change.

Key/lock system

The key/lock system provides access for management staff, and also ensures that the fire department has access to all areas in an emergency situation.

Mechanical keys will be used for private office occupants only upon request through your agency's Support Services Office.

Card key system

Tenants and their employees will primarily use card keys with photo identification.

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9.1 Building Security, Continued

Keys and access cards, continued

The Building and Property Management Branch is responsible for maintaining records of all authorized card keys issued.

If changes are needed in a card's information due to an employee change or any other reason, contact your agency's Support Services Office immediately.

If a card key or mechanical key is lost, the card or key must be replaced.

Replacement Cost: $10.00 per card or key

All employees who are no longer assigned to the building will be required to turn their cards into their agency person so the cards can be recycled and re-issued to new employees. This return policy will reduce the need to purchase new cards which in turn reduces the building's waste stream.

Closed-circuit television system

Closed-circuit Televisions (CCTVs) have been installed in many areas of the building, including the main lobby, loading dock, the parking garages and all elevator lobbies.

The CCTVs are monitored 24 hours a day, seven days per week by the security services contracted by the Department of General Services.

On-site security guards

The DGS will provide contract security guard services at the main lobby of the building including roving patrol of the building perimeter grounds and office floors.

Guards are present 24 hours a day, seven days per week.

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9.1 Building Security, Continued

Blue light pedestrian system

The parking facilities have emergency call stations located every 100 feet. These emergency call stations are marked with a blue light.

The stations consist of a hands-free push button emergency phone and a blue light/strobe in high-visibility wall mounted enclosures. Once a blue light is activated, it remains lit, calling attention to the location and communicating to the security guards via pager an emergency notification.

Pushing the 3”-diameter button activates the emergency phone. The emergency phone then automatically dials the Central Security Room allowing for communication with the security staff and transmitting the location of the call. The strobe will flash until either terminated by the security guard receiving the call or automatically upon termination of the call itself.

The system interconnects with the security and CCTV systems for automatic call-up of the nearest CCTV camera for immediate assessment of the events in progress.

The phone unit is equipped with LED lights notifying persons unable to hear a response that their call has been received. The LED automatically turns off when the answering party speaks and lights up when the answering party is listening. The word “EMERGENCY” is written in Braille and the button is incorporated into the plate for easy identification and use by the visually impaired.

Preventative measures

There are routine, precautionary measures which everyone can take to help create a safe environment:

- Keep personal items such as purses, wallets, sensitive or proprietary information and valuable items in a secured, out-of-sight location when not at your work area.
- Report any solicitors who appear in your suite or in the building to building management or security immediately.
- Report any suspicious people loitering in the building to building management or security immediately.
- Keep your car locked.
- Be aware and alert to everything around you if leaving the building on foot after dark.
- Report any packages or cases, which appear to be abandoned.

9.2 Emergency Procedures

Introduction

It is the responsibility of the tenant to develop, implement and communicate emergency procedures to the occupants of the building.

Emergency procedures should include contact information and provisions for:

- Fire and evacuation
- Medical emergency
- Bomb threat
- Natural disasters
- Peak load energy reduction

Risk management

Building Management takes a very active role in risk management and hazard prevention but, unfortunately, accidents may happen.

Any incident that results in an injury or claim involving the building or its grounds should be immediately reported to Building Management. If the incident occurs after business hours, report the incident to Security.

It is BPM's policy to record and report such matters as quickly as possible after they occur. Management also performs needed repairs or changes for improving safety for all tenants and building occupants.

To report any claim, injury or incident, please call your agency's Support Services Office.

9.3 Building Amenities

Introduction

The Department of Education building contains many amenities, including:

- Accessibility
- Features such as art and pocket parks
- Sustainable building features
- Underfloor air distribution
- Parking
- Lactation rooms
- Bicycle parking
- Shower and locker rooms
- Child care center

For policies and procedures regarding any of the amenities listed above, see page 9-18.

9.3.1 Accessibility

The Department of Education provides accessibility to all users.

Building features and systems include;

- Accessible drop-off locations adjacent to main entry of each building,
- Accessible parking for cars and vans
- Automatic doors for access into each building and to internal public spaces
- Accessible elevators to all tenant floors
- Assisted listening devices
- Accessible restrooms, lockers, work stations
- Signage to assist the sight-impaired

These features are intended to provide for full accessibility to and within the buildings for visitors, employees, and the public.

9.3.2 Building Features

Art program

The East End Complex has the largest state public art program to date. There are a total of 24 locations throughout the complex where artwork has been integrated in the architecture or placed, including etched elevator doors in each lobby of the five buildings, the lobby areas of each building, and multiple locations outside the buildings.

A comprehensive brochure providing the details of the artists and their artwork for the East End Complex will be available.

Pocket park and courtyards

A shaded park area is located between the historic Dean Apartments and the Education Building located at 1430 N Street. This setting offers state employees and the public a place to retreat for breaks or bag lunches.

The Pocket Park's use of land and landscape symbolism creates a quiet environment with native plantings, drip irrigation, benches and trash receptacles made from recycled materials, high-efficient lighting, and an organic landscape maintenance and pest management programs that all contribute to the project's sustainability goals.

The buildings located at 1501 Capitol Avenue (Building 151) and 1615 Capitol Avenue (Building 151) will each have a courtyard that will provide a quiet and scenic area for employees to take their breaks.

9.3.3 Sustainable Building Features

Sustainable building features

Sustainable design is an opportunity to use our resources efficiently while creating healthier buildings. It provides cost savings through improved human health and productivity, lower cost building operations, and resource efficiency, moving us closer to a sustainable future.

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9.3.3 Sustainable Building Features, Continued

Sustainable building features, continued

The East End Complex was designed, constructed, and equipped to exceed the minimum building energy-efficiency standards mandated by Title 24 of the California Code of Regulations by 30% using the following energy efficiency measures:

- Lower energy costs through the use of "smart" lighting controls, high-efficiency fluorescent lamps and window glazing, and open workstations at the perimeter of each floor designed to maximize the benefits of both lamps types of lighting.
- The lighting is suspended by indirect fixtures to provide even, glare-free lighting that is uniform throughout. Lighting in the office spaces will be a combination of direct and indirect light to maximize the benefits of both types of lighting.
- The automated lighting controls include dimming, motion/occupancy sensors, daylight sensors, time-of-day control, and photocell control for exterior lighting.
- Use of high performance glass and high ceilings to allow more natural light to penetrate into the interior areas of the building.
- Use of building products containing recycled materials including recovered construction and demolition waste.
- Reusing 30,000 square feet of gray marble in ground floor lobbies recovered from the historic Library and Courts building.
- Promoting clean air by providing recharging stations for electric vehicles, designated parking for pool and alternative fueled vehicles, and bicycle lockers and shower facilities for bicycle commuters.
- Conserving water by use of low flow systems and plumbing fixture restrictors.
- Placing recycling centers to further encourage the recycling of glass, paper and aluminum.
- Using light color tones in interiors (paint, modular wall panels) emphasizes the open feel of the space and help reflect light within the space.
- Low water consumption plumbing fixtures and flow restrictors reduce water consumption and sewage discharge.
- Incorporation of drought tolerant plant materials sustained by a drip irrigation system.

By incorporating these and other sustainable and energy-efficient design features, the East End Complex was award LEED-NC Gold certification by the U.S. Green Building Council when the building officially opened in 2004. Since the building's opening, it has received an Energy Star rating of 95.

A Self-guided Virtual Green Building Tour brochure is available online at http://www.eastend.dgs.ca.gov/GreenPage/USGreenBuildingCouncil-GreenBuildingTour.htm

9.3.4 Underfloor Air Distribution

The Education Building at 1430 N Street is designed with an underfloor air distribution (UFAD) system. One of the main advantages of UFAD systems over conventional overhead ceiling systems is in the area of thermal comfort, in that individual preferences can be more readily accommodated. UFAD systems are designed to deliver conditioned air to a relatively large number of locations within the building, in close proximity to the building occupant work spaces. By delivering air directly into the building at floor level, UFAD systems can provide an opportunity for individuals to have some amount of control over their local work environment.

Individual swirl floor diffusers are located throughout the building's work/floor areas, the majority of them within individual workstations. These diffusers can be rotated to control the airflow volume.

Care must be taken to avoid spilling liquids on the floor. If an accident should occur, contact the Building Manager's office immediately through your Support Services Office.

9.3.5 Parking

Enclosed covered parking is available to tenants and some of their staff. Only those assigned tenants and employees will have daytime parking privileges in the building's garage. The card keys issued to operate your suite doors will also operate the garage arms and roll up gates at the garage entry/exit. The card key for the garage system is designed with an "Anti-Pass Back" feature. This means each card key entry requires an exit before it can be used to enter again.

9.3.6 Alternative Transportation

Introduction

The Department of Education building has numerous accommodations for alternative transportation, including:

- Public transportation access
- Bicycle storage and changing rooms
- Parking and charging stations for alternative fuel vehicles
- Carpooling and telecommuting program

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9.3.6 Alternative Transportation, Continued

Introduction, continued

For more information, see the Department of Education's intranet site: www.intranet.cde.ca/psdweb/bldgops/commuting.asp

Bicycle parking and changing rooms

Ribbon-racks (metal racks bolted to the floor) for bicycle parking are located in the fully secured bike storage room on the ground floor and are accessible from the dock.

In addition to the bike room, there are a limited number of lock racks in front of the building.

Men's and Women's Locker and Shower Rooms are available on the ground floor for common use.

Public transportation access

The Department of Education is located near several bus lines, and within approximately 1,000 feet of the light rail stations.

For more route and schedule information, see the following web pages:

- www.sacrt.com
- www.yolobus.com
- www.eldoradotransit.com
- www.roseville.ca.us/transit
- www.yubasuttertransit.com
- www.folsom.ca.us

For additional information about public transportation options, see the Department of Education's intranet site.

Alternative fuel vehicles

There are seven (7) parking spaces with charging stations in the parking garage designated for electric vehicles.

These parking spaces are available on a first-come first-serve basis.

Carpooling program

If you carpool, the monthly underground parking fee is discounted. There are no designated spaces reserved for carpooling or individual parking spaces.

Carpool badges are given to those who fill out the Employee Car/Vanpool Parking Rules and Agreement form (number OFA 73).

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9.3.6 Alternative Transportation, Continued

Carpooling program, continued

The carpooler receives a key card that allows access into the garage. There is an anti-pass-back feature built into the key card system that does not allow for co-carpoolers to violate the agreement of one car per carpool keycard per day.

To obtain the carpool agreement form and get more information regarding commuting, see the Department of Education intranet site.

9.3.7 Lactation Rooms

Private lactation rooms are available only for women who are nursing. The rooms are card reader accessible. Cardkeys can be programmed for certain periods of time based on the individual's need.

A sink, counter space and room for an under-the-counter refrigerator are available as well as cabinet space for storing pump machines. There are three separately curtained areas with dimmable lighting and a shelf with an electrical outlet to support a small pumping machine.

Wall space can be used for a bulletin board for information sharing purposes.

9.3.8 Child Care Center

The Child Care Center accommodates approximately 100 children. The center is located on the O Street side of Block 225 (1430 N Street).

Both interior and exterior play areas are available and the center accommodates infants, toddlers, and pre-school-aged children.

9.4 Building Services

Introduction

Listed below are the normal operating hours for the building as well as lighting and HVAC services that are available after hours

BPM also provides the following building services:
- Cleaning
- Maintenance
- Special Arrangements

Operating hours

Normal building operating hours are 6:00 a.m. – 6:00 p.m., Monday through Friday. All other times and holidays are considered “after hours”.

The State of California observes the following national holidays:
- New Year’s Day
- Martin Luther King, Jr. Day
- Lincoln’s Birthday
- President’s Birthday
- Cesar Chavez Day
- Memorial Day
- Independence Day
- Labor Day
- Columbus Day
- Veteran’s Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Day

Prior arrangements to access the building after normal business hours are to be coordinated through the appropriate Manager/Supervisor and your agency’s Support Services Office. All staff must enter through the building’s main entrance.

After-hours services

During normal business hours, the building lighting is controlled through occupancy and light level sensors. Dimmable automatic wall switches turn lighting systems on and off and can dim the lights. Ultrasonic occupancy sensors turn lighting on only when needed and has adjustable sensitivity and time delay. The sensors can be adjusted from 30 seconds to 30 minutes for automatic shut-off and has a manual on-off by-pass capability. These devices were designed into the building’s operating system and reduce energy consumption. Tenants should be mindful to not override the automatic lighting shut off if they do not intend to occupy their specific work area.

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9.4 Building Services, Continued

After-hours services, continued

HVAC (heating and air conditioning) is available Monday – Friday, 6:00 a.m.–6:00 p.m. A management and control system has been provided for programmed start-stop cycles to provide both comfort and energy efficiency.

Requests to the Building and Property Management Office for after-hours HVAC services are to be submitted through your agency's Support Services Office.

9.4.1 Cleaning

BPM performs the majority of building cleaning after hours Monday through Friday, with some cleaning done during the day.

Upon proper notice, BPM will provide additional cleaning service if required.

After hours cleaning

Daily after hours cleaning of tenant occupied areas includes:

- Dusting
- Vacuuming
- Emptying waste baskets
- Emptying central recycling containers
- Mopping tile floors

Heavy cleaning such as detail dusting, carpet cleaning, waxing, sealing, and buffing will be periodically performed, also during the after hours.

Daytime cleaning

In order to maintain the cleanliness of common area lobbies, restrooms and sidewalks, staffing includes day staff.

The day workers will also check paper stock in the common area restrooms.

Additional cleaning services

Any trash that does not fit in a garbage container should be marked "TRASH" in red ink and placed on the floor in a conspicuous place. Please be certain not to place it in traffic pathways. All items marked such shall be discarded.

Continued On Next Page

9.4.1 Cleaning, Continued

Additional cleaning services, continued

Cleaning for special events, or other services outside the usual scope, should be directed to building management at least one business day in advance. Tenants will be required to sign a work order and charges relating to the service performed may be billed to the tenant.

Direct any and all problems or special requests about cleaning needs to BPM through your agency's Support Services Office.

BPM's goal is to ensure janitorial complaints are responded to in a timely fashion and that there are few repeat calls.

Consequently, complaints will be followed up with inspections as needed to confirm resolution of any inconveniences. Management will regularly review complaints and requests to help ensure not only clear communication with the cleaning supervisors, but also quality control.

9.4.2 Maintenance

Introduction

Maintenance staff is on-site 24 hours a day, seven days a week with normal building maintenance services performed from 8:00 a.m. to 5:00 p.m., Monday through Friday.

Tenant calls are seen as an opportunity to provide service. BPM is committed to providing the most comfortable and secure environment for our tenants and their employees.

Instructions for tenants

To conserve energy, and for the building heating and air conditioning systems to perform as designed, your assistance is requested in ensuring that:

- blinds are closed when windows are receiving direct sun
- authorized building maintenance staff are contacted to make thermostat adjustments

9.4.2 Maintenance, Continued

Service requests

In the event you should experience environmental discomfort or problems with building systems, please contact your agency's Support Services Office. Your request will be promptly dispatched to the appropriate staff.

Should you have a request or problem before or after the normal hours (8:00 a.m. to 5:00 p.m., Monday through Friday), call the building management office through your agency's Support Services Office.

For emergencies, call security. The on-site security staff has after-hours contact information to call management personnel.

In order to ensure accurate responses, your tenant representative (Support Services Officer) should provide the following information when placing any call to building management (see sample next page):

- Tenant Representative's Name
- Tenant Name
- Location (Building, Floor, Suite Number)
- Brief Description of Problem/Request

BPM shall make every attempt to respond and resolve your problem within one (1) working day. You will be notified if your problem/request will take longer to attend to or complete. The building manager and chief engineer review work orders on a regular basis. Weekly staff meetings are held to discuss any serious or continuing tenant complaints and a plan of action is implemented to resolve the problem.

Additional service requests, which are not attributable to building operations but benefit the tenant alone (i.e. alterations), should also be directed to building management through your agency's Support Services Office. Such services may be at the expense of the tenant.

Sample service request

The following sample form can be used to make service requests.

Continued On Next Page

9.4.2 Maintenance, Continued

Sample service request, continued

State of California Department of General Services
SERVICE REQUEST Building and Property Management Branch

SUPPORT SERVICES SECTION
Agency: _____
Address: _____

Date/Time: _____ Agency Log Number: _____

Requested by: _____ Contact Phone: _____

Work Location:

Building: 225/CDE ___ 171/DHS ___ 172/CDE ___ 173/DHS ___ 174/DHS ___

Floor/Suite/Room: _____

Job Description:
_____

_____

_____

Support Services Authorization: _____ Phone #: _____

Tenant Service Work Order #: _____

FOR DGS USE ONLY

Received by: _____

Comments:
_____

_____

_____

9.4.3 Special Arrangements

Routine and normal services are provided each evening. If you have a late night meeting or event that extends into the evening, building management should be notified so they can inform the janitorial staff not to interrupt.

Maintenance services are provided each Monday through Friday during normal and usual business hours as referenced in the Building Maintenance section. Should after hours or special services be needed, contact building management to arrange a time to discuss the special requirements.

Special cleaning and maintenance services can be arranged by contacting your agency's Support Services Office. The cost for these additional services may be billed to the tenant at the tenant's sole cost and expense. When notifying building management, costs will be discussed and a mutual agreement reached prior to performance of the job.

9.5 Policies and Procedures

Introduction

The following policies and procedures must be followed by all occupants of the building:

- Smoking
- Parking
- Recycling
- Holiday Decorations
- Joint Use Space
- Mail Service and Large Deliveries
- Moving Equipment and Furniture
- General Policies

9.5.1 Smoking

Smoking policy

In accordance with the Executive Order W-42-93 issued February 19, 1993, cigarette smoking inside state owned buildings and leased space is banned. In addition, Management Memo 00-08, effective September 25, 2000, prohibits smoking within 20 feet of doorways to State-owned or leased buildings. Enforcement of the Governor's Executive Order is to be implemented by each department.

Ash urns have been placed outside in the building breezeways and in courtyards. By utilizing the ash urns, smokers can help keep the grounds and surrounding environment clean, attractive and free of debris. Report any maintenance requirements to the Building Management office.

As noted, each Department is responsible to ensure that their personnel comply with the Governor's Order regarding smoking in state facilities.

9.5.2 Parking

Parking

The Department of General Services will issue access cards for parking spaces as authorized by your agency's Support Services Office or the Transportation Coordinator.

Automatic payroll deductions are administered by The Office of Fleet Administration, Employee Parking Unit.

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9.5.2 Parking, Continued

Parking, continued

The Department of General Services contract security guards are assigned to monitor activity by CCTV 24 hours a day. Any unauthorized vehicles parked in the garage during normal business hours will be subject to being towed at the expense of the owner of the automobile.

No parking is authorized in the building alley or its loading dock. The City of Sacramento Fire codes require unobstructed access to the building. In accordance with their requirements, violators will be subject to having their vehicles towed if parked in street or alley areas. All such towing charges shall be at the expense of the owner of the automobile.

The Department of General Services, the State of California and its agencies assume no liability for loss of or damage to any vehicles, any contents of such vehicles or accessories to any such vehicle, any property left in any of the parking areas resulting from fire, theft, vandalism, accident, conduct of other users of the parking area and other persons, or any other casualty or cause. However, building management and building Security would appreciate your reporting any such incidents should they occur.

9.5.3 Recycling

The State of California established the Integrated Waste Management Board as a part of the California Environmental Protection Agency to initiate collection, separation and recycling activities. Recycling makes sense; saves money and landfill space and greatly reduces our country's solid waste. Recycling also saves energy and water, reduces pollution, lowers disposal costs and increases revenue.

The building's Recycling Plan is designed to address the handling white paper, mixed paper, cardboard, aluminum, batteries, glass and plastic.

The Integrated Waste Management Board has provided blue plastic containers in each copy room as well as various locations throughout the building.

The janitorial crew will empty the blue recycling containers into the central storage bin in the loading dock for periodic collection by the contractor hired to retrieve and dispose of the recyclable products.

Continued On Next Page

9.5.3 Recycling, Continued

Recycling, continued

Instruct staff to keep white paper and computer papers separate from trash.

White paper is stationary or typing paper and computer printouts, carbon copies (without carbons), bond machine copies (dry toner), miscellaneous white forms, letterheads, white table sheets and white bond adding machine tape.

Mixed paper is plastics, carbon paper, magazines, envelopes with plastic windows, gummed labels, tablet bindings, adhesives, cellophane tape, slick paper copies (coated, waxed or plasticized), ditto masters, offset press masters, photographic or blueprint paper, rubber bands and thermal transfer FAX paper.

Colored paper, cardboard and newspaper should be collected in separate containers.

Newsprint type computer paper should be considered newsprint.

Batteries are to be collected by each agency. Contact your agency's Support Services Office if you have batteries to be recycled.

9.5.4 Holiday Decorations

Due to the potential danger from the improper use of holiday decorations, building management has established the following policies and procedures.

Use:
- artificial holiday trees only
- flame retardant decorations only
- UL listed decorative lighting
- lighting designed for indoor use
- UL listed extension cords
- extension cords that are one (1) size larger than the wire size of the appliance being used
- extension cords to power only one (1) appliance
- extension cords long enough to reach receptacle
- UL listed multiple outlet power strips to plug in more than one appliance

All decorative lighting is to be unplugged after hours or when the office will be vacant.

9.5.5 Shower and Locker Rooms

Men's and Women's Locker and Shower Rooms are available on the ground floor for common use. Occupants using the lockers will supply personal locks and are on a first come, first served basis. Lockers are to be used only for a short time period, i.e., long enough to exercise and return or for partial days. This has been determined to be the most equitable method due to the limited number of lockers and to aid in sanitation control. Locks securing lockers for longer periods are subject to removal by building management.

9.5.6 Bicycle Storage

Ribbon-racks for bicycle parking are located in the fully secured bike storage room on the ground floor and are accessible from the dock. Bicycles are not to be brought through the main lobby entrances. Card keys with access authorization will operate the doorway from the dock and the doorway hall accessible from the main lobby. Spaces can be reserved by contacting the agency's Transportation Coordinator.

In addition to the bike room, there are a limited number of lock racks in front of the building. Bicycles are permissible only in these two areas of the building. They cannot be transported to or stored in any other building interior space.

The Department of General Services, the State of California and its agencies assume no liability for loss of or damage to any vehicle or any contents of such vehicles or accessories to any such vehicle, or any property left in any of the parking areas, resulting from fire, theft, vandalism, accident, conduct of other users of the parking and other persons, or any other casualty or cause.

However, building management would appreciate your reporting any such incidents through your agency's Support Services Office they occur.

9.5.7 Joint Use Space

Introduction

The joint-use space for the East End Complex will be useful to both the Complex tenants and other state offices in the downtown area on a reservation only basis. The joint-use space includes an Auditorium and Conference/Training Center both centralized within the Complex on the ground floor of Block 172. The Child Care Center for the Complex is located on the ground floor of Block 225.

HVAC services are provided during normal building hours of 6:30 a.m. to 6:00 p.m. Monday through Friday. Requests for after hours HVAC are to be submitted to building management prior to the event.

Protective pads shall be placed under equipment to protect tables and furnishings. The tenant/user is solely responsible for damage to any of the furnishings while using the facilities and shall immediately report such damage to building management. Tenant/user also assumes responsibility for the security of furnishings, equipment, materials, etc. in the premises during and between consecutive meetings.

Routine and normal custodial services are provided each evening. If the tenant's meeting shall last into the evening, building management should be notified so they can inform security and let the janitorial staff know not to interrupt. Special cleaning services may be billed to the tenant.

Auditorium

The Auditorium seats 299 people in fixed seats, with accessible areas. It has a raised stage area, theater lighting, sound system and projection booth.

Conference/ training center

The Conference/Training Center houses many large conference and training rooms, some being dividable. There are areas for reception and registration, as well as a server room for joint maintenance of the computer training facility. Equipment storage is provided and the center has a break room as well as breakout space.

Continued On Next Page

9.5.7 Joint Use Space, Continued

Conference/ training center

When making reservations, please be prepared to provide the following information to Building Management:

- Name of person making reservation
- Tenant name
- Business phone number
- Date(s) and time(s) requested

Although not located with the rest of the Conference/Training Center, a Conference Room of approximately 1,000 square feet will be located on the ground floor of Block 171, with public access available from the building's L Street entrance. This room is separated from the Conference/Training Center to promote shared use. Any tenant can use it during the day as needed, although its primary use will be by the DHS. In the evening, it can be used for public meetings, with easy access to the adjacent parking garage, as well as close proximity to the Sacramento Community Center.

Child-care center

The Child Care Center will accommodate approximately 100 children. This facility is located on the O Street side of Block 225 (1430 N Street).

Both interior and exterior play areas are available, accommodating infants, toddlers, and pre-school-aged children.

Drop-off/pick-up parking at O Street is the best option for easier entrance.

Community police station

The community police station is used by the CHP and the Sacramento City Police Department for report writing.

It is located in Block 173 facing the plaza on Capitol Avenue.

Retail and restaurant space

Retail and Restaurant Space is located on the ground floor facing 14th Street.

9.5.8 Mail Service and Large Deliveries

The mail carriers deliver mail to the Mail Room located on the first floor. UPS, Federal Express, etc. will be signed for and certified. Return receipt and express mail from the post office will be signed for and the return receipt green cards will be sent back to the sender.

Outgoing mail is placed in a bin marked U. S. Mail on the service counter located in the entry of the mailroom. Bins are also available for Federal Express or other overnight carriers.

The Dock Master will be posted between the hours of 8:00 and 11:00 a.m. and 1:00 and 4:30 p.m., Monday through Friday and can assist directing drivers. No deliveries are to be made after 3:30 p.m. Upon receiving clearance, the freight elevator door or rear hallway door will be opened for delivery to the designated tenant's floor. Delivery schedules are to be coordinated with the Security Guard at the Central Security Room.

For deliveries of large items such as equipment or furniture, see Moving Equipment and Furniture on page 9-24.

Staff or contractors must be aware of both (1) safety for building occupants as large objects are moved and (2) care for the elevator doors/frames, walls and office doors/frames which are frequently damaged by furniture, hand trucks or mail carts smashing into them.

9.5.9 Moving Equipment and Furniture

Notification

The Dock Master shall report in advance all scheduled moves to BPM (Building and Property Management).

The tenant will ensure that requirements, as outlined in this section, are provided to building management and approved prior to any movement of property into or out of the building.

The moving company shall provide a certificate of insurance to building management naming THE STATE OF CALIFORNIA, its OFFICERS, EMPLOYEES and SERVANTS as additional insured. Failure to supply the certificate could result in cancellation of the move.

Continued On Next Page

9.5.9 Moving Equipment and Furniture, Continued

Moving company requirements

Moving Company employees are required to:

- Provide identification
- Perform inspections
- Furnish supervision, materials, and equipment during the move

Identification

Moving companies shall have company identification visible in order to maintain the security of the premises, i.e., uniform, identification badge, etc.

Each tenant shall comply with all requirements necessary for the security of the premises, including the use of service passes issued by security or registering with the on-site security after hours. Security and/or management reserves the right to refuse entry to the building after normal business hours to tenant, its employees, agents or invitees, or any other person without satisfactory identification showing his or her right of access to the building at such time.

Inspection

A walk-through inspection should be made by the moving company representative, tenant representative and building management representative.

The moving company shall be responsible for inspecting the premises in order to become familiar with the conditions existing at the building and to verify various access dimensions so that such equipment and labor necessary to provide for the orderly efficient movement of the property can be furnished. Any damage shall be repaired by the building's designated contractor at the moving company's sole expense.

Continued On Next Page

9.5.9 Moving Equipment and Furniture, Continued

Moving company requirements, continued

Supervision, Material and Equipment

The tenant/moving company shall furnish all supervision, labor materials, supplies and equipment necessary to perform services in an orderly, timely and efficient manner. All material handling vehicles must have rubber-tired wheels and be maintained free of grease and dirt.

The tenant/moving company shall also furnish, install and remove floor, carpet, wall and glass protective materials wherever necessary to protect the building from damage. The following minimum protection is mandatory:

1. Elevator corner trim must be taped.
2. Masonite floor protection must be used on all stone tile.
3. Walk-off plates must be provided to protect door and elevator thresholds.

Elevator pads must be in place if passenger elevators are reserved for moving. These are available through the building management offices. All elevators are equipped with blanket hooks.

Precautions shall be taken to safeguard the tenant's property and the building from damage. All protective materials shall be removed from the building by the tenant/company.

Access

A freight elevator is available from the loading dock. For daytime use, this elevator must be reserved in advance of the move through building management. Should a second elevator be needed, arrangements must be made in advance so the cab can be padded and designated for independent floor use.

Freight Elevator Specifications

Inside Dimensions: 5''8" wide by 7'10" deep by 10' high floor to ceiling
Door opening: 4' wide
Capacity: 4,500 lbs.

Movement in or out of the building of furniture, office equipment, safes or other bulky material which requires the use of elevators, stairways, or the building entrance and lobby shall be restricted to hours established by building management.

Continued On Next Page

9.5.9 Moving Equipment and Furniture, Continued

Safety and liability

It shall be the responsibility of the tenant/company to:

- perform the movement of property in the safest manner possible
- avoid blocking of building corridors, entrances and exits
- prevent accumulation of large amounts of combustible materials

The tenant understands that costs to repair damage to walls, door frames, doors, carpet, etc. could be billed back to the tenant.

Building management or security shall not be liable for any damages resulting from any error in regard to any such identification or from such admission to or exclusion from the building. BPM shall not be liable to tenant for losses due to theft or burglary, or for damage by unauthorized persons in, on or about the project, and tenant assumes full responsibility for protecting the leased premises from theft, robbery and pilferage, which includes keeping doors locked and other means of entry closed.

9.6 General Rules and Policies

1. Management may from time to time adopt appropriate systems and procedures for the security or safety of: the building, any persons occupying, using or entering the Building, or any equipment, finishing or contents of the building. Tenant will comply with management's reasonable requirements relative to such systems and procedures.

2. The sidewalks, doorways, halls, passages, exits, entrances elevators, stairways, vestibules and other similar areas shall not be obstructed by tenant or used by tenant for any purpose other than ingress to and egress from the premises, and for going from one part of the building to another part. This includes but is not limited to boxes, computer equipment, desks, tables and chairs.

3. No tenant, no employee and no invitee of any tenant will go up on the roof of the building.

4. The building is for the use and access to persons with whom the tenant normally deals in the ordinary course of its business, or persons with express invitation from tenant or tenant's staff to visit their premises. Management retains the right to control and prevent access to any areas of the building to all persons whose presence, in judgment of management or security, would be prejudicial to the safety and interests of the building and its tenants. Building management and security reserves the right to exclude or expel from the project any person who, in building management or security judgment is under the influence of liquor or drugs, or who shall in any manner do any act in violation of any of these rules and regulations.

5. Corridor doors shall be kept closed. Before leaving the building tenant shall ensure that all doors to the leased premises are securely locked and all water faucets are shut off.

6. Plumbing fixtures shall be used only for their designated purpose, and no foreign substances of any kind shall be deposited therein. The toilet rooms, toilet, urinals, wash bowls and other plumbing fixtures will not be used for any purposes other than those for which they were constructed, and no sweepings, rubbish, rags, coffee grounds, or other foreign substances will be thrown in such plumbing fixtures. All damages resulting from any misuse of the fixtures will be borne by the tenant who, or whose servants, employees, agents, visitors or licensees caused the same.

Continued On Next Page

9.6 General Rules and Policies, Continued

General rules and policies, continued

7. Nails, screws and other attachments to the building require prior written consent from building management except for the routine hanging of pictures, clocks and diplomas or certifications. Tenant shall not mar or deface the premises in any way. Tenant shall not place anything on or near the glass of any window, door or wall, which may appear unsightly from outside premises.

8. All contractors and technicians rendering any installation service to Tenant shall be subject to building management approval and supervision prior to performing services. This applies to all work performed in the building, including, but not limited to, installation of telephones, telegraph equipment, wiring of any kind, and electrical devices, as well as all installations affecting floors, walls, woodwork, windows, ceilings and any other physical portion of the building.

9. Tenant shall cooperate with building management in maintaining the premises. Tenant shall not employ any person for the purpose of cleaning the premises other than the building's cleaning and maintenance personnel. Only management's agents shall do window cleaning at such times and during such hours as building management shall elect.

10. Deliveries of water, soft drinks, newspapers or other such items to the premises shall be restricted to hours established by building management and made by use of the freight elevator only.

11. Nothing shall be swept or thrown into the corridors, halls, elevator shafts or stairways. No birds or animals of any kind shall be brought into or kept in, on or about the premises, with the exception of guide dogs.

12. No cooking shall be done in the premises except in those kitchens specifically designed for cooking appliances.

13. Tenant shall not install or operate on the premises any electric heater, personal fan, stove or similar equipment without building management consent. Reasonable accommodation requests with a doctor's verification are to be submitted to building management for exceptions.

14. Tenant shall not use or keep on the premises any kerosene, gasoline, or inflammable or combustible fluid or material other than limited quantities necessary for the operation and maintenance of equipment utilized at the loading dock, e.g. fork lift.

Continued On Next Page

9.6 General Rules and Policies, Continued

General rules and policies, continued

15. No weapons of any kind shall be brought onto the premises at any time. This includes but is not limited to firearms, knives, taser, stun guns or unauthorized tear gas weapons. Law enforcement officers are exempt. No explosives shall be brought onto the premises at any time.

16. Tenant shall not waste electricity, water or air conditioning and agrees to cooperate fully with building management to assure the most effective operation of the building's heating and air conditioning and to comply with any governmental energy-saving rules, laws or regulations of which tenant shall not tamper with or attempt to adjust temperature control thermostats in the leased premises; building management shall make reasonable adjustments in thermostats upon request from tenant.

17. No sign, placard, picture or notice visible from the exterior of tenant's premises will be inscribed, painted, affixed or otherwise displayed by tenant on any part of the building or the premises without the prior written consent of management. All approved signs or lettering on doors will be printed, painted, affixed or inscribed at the expense of the tenant by a person approved by management. No paper signs or stickers are allowed on any interior common area walls or doors of the building. Metal and glass display cabinets can be installed in the common hallways. Any exposed boards (cork/white/electronic) are to be located within sub-corridors or rooms. Other than draperies or window blinds expressly permitted by building standards, material visible from outside the building will not be permitted. In the event of the violation of this rule by tenant, management may remove the violating items without any liability, and may charge the expense incurred by such removal to the tenant or tenants in violation of this rule.

18. Canvassing, peddling, posting, soliciting, and distribution of handbills in or at the building are prohibited and tenant will cooperate to prevent these activities.

Continued On Next Page

9.6 General Rules and Policies, Continued

General rules and policies, continued

19. Building management reserves the right to rescind any of these rules and regulations and to make future rules and regulations required for the safety, protection and maintenance of the buildings, the operation and preservation of the good order thereof, and the protection and comfort of the tenants and their employees and visitors. Building management shall not be responsible to tenant for the non-observance or violation of these rules and regulations by any other tenant of the building. Management may waive any one or more of these rules and regulations for the benefit of any particular tenant or tenants, but no such waiver or such rules and regulations in favor of any tenant or tenants, may prevent management from enforcing any such rules and regulations against any or all of the tenants of the building after such waiver.

20. These rules and regulations are in addition to, and will not be construed to modify or amend, in whole or in part, the terms, covenants, agreements and conditions of any lease or assignment of premises in the building.

10 LEED-EB Index

This index lists prerequisites and credits that can be obtained by submitting this manual as part of the documentation required for LEED-EB certification.

The prerequisites and credits below are grouped by:
- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation in Operation and Upgrades

10.1 Sustainable Sites

The Sustainable Sites prerequisites and credits that are addressed in this manual are listed below

Prereq	LEED-EB Description	Page
1	Erosion & Sedimentation Control (Policy)	5-2
2	Age of Building	1-3

Credit	LEED-EB Description	Page
1.1 & 1.2	Plan for Green Site and Building Exterior Management (Exterior Management Plan)	5-11
1.1 & 1.2	Plan for Green Site and Building Exterior Management (Integrated Pest Management)	3-7
3.3	Alternative Transportation, Alternative Fuel Vehicles (Part of Communication Plan)	9-9

10.2 Water Efficiency

The Water Efficiency prerequisites and credits that are addressed in this manual are listed below.

Prereq	LEED-EB Description	Page
1	Fixture Potable Water Baseline	1-5
2	Discharge Water Compliance	1-4

10.3 Energy and Atmosphere

The Energy and Atmosphere prerequisites and credits that are addressed in this manual are listed below.

Prereq	LEED-EB Description	Page
1	Existing Building Commissioning	1-6
2	Minimum Energy Performance	1-7

Credit	LEED-EB Description	Page
3.3	Building Operation & Maintenance: Building Systems Monitoring (System for Delivering Prompt Repairs)	4-9
4	Additional Ozone Protection (Refrigerant Management for CFCs & HFCs)	4-18

10.4 Materials and Resources

The Materials and Resources prerequisites and credits that are addressed in this manual are listed below.

Prereq	LEED-EB Description	Page
1.1	Source Reduction and Waste Management – Waste Management Policy and Waste Stream Audit (Policy)	7-1
1.2	Source Reduction and Waste Management – Storage & Collection of Recyclables	7-7

Continued On Next Page

10.4 Materials and Resources, Continued

Prereq	LEED-EB Description	Page
2	Toxic Material Source Reduction – Reduced Mercury in Light Bulbs (Organizational Policy)	6-2

Credit	LEED-EB Description	Page
1.1-1.2	Construction, Demolition and Renovation Waste Management (Construction Waste Management Policy)	8-15
2.1-2.5	Optimize Use of Alternative Materials (Organizational Policy)	6-3
3.1 & 3.2	Optimize Use of IAQ Compliant Products (Organizational Policy)	6-6
4.1-4.3	Sustainable Cleaning Products and Materials (Organizational Policy)	6-7
5.1-5.3	Occupant Recycling (Organizational Recycling Policy)	7-1
6	Additional Toxic Material Reduction – Reduced Mercury in Light Bulbs (Organizational Policy)	6-2

10.5 Indoor Environmental Quality

The Indoor Environmental Quality prerequisites and credits that are addressed in this manual are listed below.

Prereq	LEED-EB Description	Page
3	Asbestos Removal or Encapsulation (Asbestos Management Plan)	8-2
4	Polychlorinated Biphenyl (PCB) Removal (PCB Management Plan)	8-6

Credit	LEED-EB Description	Page
3	IAQ Construction Management Plan, During Construction (Construction and Demolition IAQ Plan)	8-7
7.1	Thermal Comfort Compliance	1-8
8.3-8.4	Daylight and Views (Building Space Churn Renovation Plan)	8-14

10.5 Indoor Environmental Quality, Continued

Credit	LEED-EB Description	Page
9	Contemporary IAQ Practice – Indoor Air Quality Management Plan	4-11
10.1	Green Cleaning: Entryway Systems	2-29, 2-30
10.2	Green Cleaning: Isolation of Janitorial Closets	2-41
10.3	Green Cleaning: Low Environmental Impact Cleaning Policy	2-27
10.4-5	Green Cleaning: Low Environmental Impact Pest Management Policy	2-32, 3-7, 3-8, 3-9
10.6	Green Cleaning: Low Environmental Impact Cleaning Equipment Policy	2-34

10.6 Innovation in Operation and Upgrades

The Innovation in Operation and Upgrades credits that are addressed in this manual are listed below.

These credits can only be obtained once, but their certification is dependent upon their implementation and continued use. This section should not be omitted from future versions of the manual.

Credit	LEED-EB Description	Page
1.2	Tenant Handbook	9-1

Appendix A Custodial Policies, Forms, and Reports

For internal use only.

Appendix B Erosion and Sedimentation Control Specification

SECTION 02371 – EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Work consists of controlling and reducing soil erosion and sedimentation, reducing negative impacts on water and air quality by applying measures such as silt fencing, silt basin, straw wattles, silt sacks, hydroseeding, mulching, planting, vegetated swales, turf reinforcement mats, vegetated roofs, stabilized site construction access points, porous pavement, permeable pavers, drain underground plastic tanks and dust palliative. The contractor shall furnish, construct and install the measures and items shown on the plans.

1.02 RELATED SECTIONS

A. Sprinkler Irrigation System.
B. Site Clearing and Grubbing
C. Earthwork
D. Asphalt Concrete Pavement
E. Portland Cement Concrete pavement

1.03 SUBMITTALS

A. Material List: Within 30 days after the award of contract and prior to mobilizing and site clearing, the contractor shall Submit 5 copies of complete list of materials, equipment and sources proposed to use to implementing erosion and sedimentation.

B. Descriptive Data: Upon the State's approval of the list of materials, send five copies of complete description, information, and performance data covering materials and equipment which are specified, but for which catalog plate numbers, brand names, or specific models have not been used.

C. Submittal of catalog data and descriptive bulletins will not be required for materials and equipment which are furnished as specified and which are completely identified in the Material List, unless otherwise noted.

D. Submit five copies of pump performance curves.

E. Do not install any of the materials concerned until written approval has been obtained from State. When requested by State, provide necessary information to determine compliance of equipment and materials with contract requirements.

1.05 EXISTING FACILITIES

A. Disturbance to existing utilities and structures shall be kept to an absolute minimum and where such disruptions are necessary, the Contractor shall provide temporary service, if required. Prior to interruption of services, arrange with the State Construction Supervisor a mutually agreeable time for such interruptions.

B. Traffic shall be maintained and proper barricades and warning devices provided at all times.

C. Damage to any existing service, street, fence, building or other structure due to work of this project shall be the responsibility of the Contractor and facilities shall be repaired or replaced by the Contractor at his own expense and to satisfaction of the State.

D. Information on drawings relative to existing conditions is as accurate as available data permits. Contractor shall be responsible to verify location existing underground facilities before trenching operations.

1.06 CODES

A. The Work shall conform to California Code of Regulations (CCR), Title 24, Building Standards (CCR Title 24), Title 8, Chapter 4, and Division of Industrial Safety (DIS).

1.04 SCHEDULING OF WORK

A. Coordinate and schedule work with the Building Manager so that final inspection of planting coincides with final inspection of total project. Planting operations may begin only after irrigation systems are approved.

1.05 PLANT ESTABLISHMENT PERIOD

A. Period is 60-calendar days starting on day water is first applied after all planting is complete. State will notify in writing the date to begin establishment period.

B. Establishment work includes all watering, weeding, cultivation necessary for healthy growing condition and any additional work to keep areas neat, mowed, edged, attractive and free of erosion damage.

C. Establishment period will be extended at the Contractor's expense for failing to perform specified work. Failure to perform on any day or days will result in that day or days not being credited as part of establishment period.

D. All planting must be maintained until final acceptance of total project is in writing.

1.06 INSPECTIONS

A. Written notice requesting inspection must be made ten working days in advance of target date. Remove all refuse and debris from premises prior to inspection. No inspection will be held unless area is in clean and orderly condition.

B. The following inspections must be scheduled:

1. Containerized plants, after delivery to the site. Identification shall be made by State Construction Supervisor or designated Landscape Architect.

2. After completion of the 60-calendar day maintenance period and correction of all deficiencies. If total project is accepted, Contractor will be relieved of maintenance.

C. In addition to the above inspections, give advanced notice to the State when the following operations are to be schedule so that designated Landscape Architect and/or State Construction Supervisor may be present to approve existing conditions, successive stages of work completed, equipment and operating procedures.

1. Tree planting holes and planting procedure.

2. Preparation of seed-bed and turf hydro seeding.

D. All deficiencies noted at inspections must be corrected, before the next scheduled inspection. Failure to make corrections will result in extension of maintenance period at Contractor's expense.

1.07 SOIL LABORATORY ANALYSIS

A. State Construction Supervisor will procure a minimum of (2) two random soil samples. Shall submit and pay for analysis of samples.

B. Have agricultural analysis performed by certified soil laboratory. Submit one copy of analysis and list recommended amendments for soil samples.

C. Upon receipt of required existing soils analysis report, revisions to quantity and type of amendments will be issued if a change to soil amendments is required.

PART 2 - MATERIALS

2.01 TOPSOIL

A. Topsoil shall be obtained from sources within the project or shall consist of imported topsoil obtained from sources outside or a combination of both sources.

B. Topsoil obtained from sources within the right of way shall be excavated to the lines and depths as directed by State. All lumps or clods shall be broken up before the topsoil is spread.

C. Imported topsoil shall consist of material obtained from sources outside the limits of the project in conformance with the provisions in Section 6-2, "Local Materials." of Caltrans Standard Specifications. Unless designated in the special provisions, the Contractor shall make the arrangements for obtaining imported topsoil and the Contractor shall pay all costs involved.

D. Imported topsoil shall consist of fertile, friable soil of loamy character, and shall contain an amount of organic matter normal to the region. It shall be obtained from well-drained arable land and shall be reasonably free from subsoil, refuse, roots, heavy or stiff clay, stones larger than 25 mm {one inch} in size, coarse sand, noxious seeds, sticks, brush, litter and other deleterious substances. Imported topsoil shall be capable of sustaining healthy plant life.

2.02 COMMERCIAL FERTILIZER

A. Commercial fertilizer shall conform to the requirements of the California Food and Agricultural Code.

B. Contractor shall confirm with Building Manager if commercial fertilizers can be used on this site or contractor is to follow site’s sustainable procedures using organic fertilizers. Commercial fertilizer for erosion control work shall be in pellet or granular form and shall have a guaranteed chemical analysis of 16 percent nitrogen, 20 percent phosphoric acid and 0 percent water soluble potash, and shall contain a minimum of 12 percent sulfur.

C. Commercial fertilizer for highway planting work shall be in pelleted, granular or tablet form and shall have the chemical analysis specified in the special provisions.

2.03 SOIL AMENDMENT

A. Soil amendment shall be a wood or bark product, treated to absorb water quickly, or a relatively dry organic compost derived from sewage sludge, plant material or rice hulls; shall be friable and pass a 25-mm {one inch} sieve and shall comply with the requirements in the California Food and Agricultural Code.

B. Rice hull compost and plant material compost shall not contain living vegetation, dirt or other objectionable material, pathogenic viruses, fly larvae, insecticides, herbicides, fungicides nor poisonous chemicals that would inhibit plant growth.

C. Soil amendment shall be packaged so that compliance can be readily determined, or shall be accompanied by a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." of Caltrans Standard Specifications.

2.04 IRON SULFATE

A. Iron sulfate shall be ferrous sulfate in pelleted or granular form containing not less than 18.5 percent iron expressed as metallic iron. Iron sulfate shall conform to the requirements of the California Food and Agricultural Code.

2.04 STRAW

A. Straw shall be derived from wheat, rice, or barley. The Contractor shall furnish evidence that clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw obtained from outside the county in which it is to be used is delivered to the site of the work. Straw that has been used for stable bedding shall not be used.

2.05 FIBER

A. Fiber shall be produced from natural or recycled (pulp) fiber, such as wood chips or similar wood materials or from newsprint, chipboard, corrugated cardboard or a combination of these processed materials, and shall be free of synthetic or plastic materials. Fiber shall not contain more than 7 percent ash as determined by the Technical Association of the Pulp and Paper Industry (TAPPI) Standard T 413, shall contain less than 250 parts per million boron and shall be otherwise nontoxic to plant or animal life.

B. Fiber shall have a water-holding capacity by mass of not less than 1200 percent as determined by the procedure designated in the Department's Final Report, CA-DOT-TL-2176-1-76-36, "Water-Holding Capacity for Hydromulch," available at the Transportation Laboratory.

C. Fiber shall be of such character that the fiber will disperse into a uniform slurry when mixed with water. Water content of the fiber before mixing into slurry shall not exceed 15 percent of the dry mass of the fiber. The percentage of water in the fiber shall be determined by California Test 226. Fiber shall have the moisture content of the fiber marked on the package. Fiber shall be colored to contrast with the area on which the fiber is to be applied, and shall not stain concrete or painted surfaces.

D. A Certificate of Compliance for fiber shall be furnished to the Engineer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." of Caltrans Standard Specifications.

2.06 MULCH

A. Unless otherwise specified on the plans, mulch shall consist of wood chips, tree bark, or shredded bark, or any combination thereof.

B. Mulch materials produced from pine trees grown in Alameda, Monterey, Santa Clara, Santa Cruz, San Luis Obispo or San Mateo Counties shall not be used.

C. Wood chips shall be manufactured from clean wood. The particle size of the chips shall be between 1/2 inch and 3 inches in length, and not less than 3/8 inch in width and 1/16 inch in thickness.

D. At least 85 percent, by volume, of wood chips shall conform to the sizes specified.

E. Wood chips produced from tree trimmings which contain leaves or small twigs will not be accepted.

F. Tree bark shall have a particle size between 1/2 inch and 1 1/2 inches and shall be free of salt and foreign materials such as clods, coarse objects, sticks, rocks, weeds or weed seeds.

G. Shredded bark shall be a mixture of shredded bark and wood; shall have a particle size between 1/8 inch and 1 1/2 inches in thickness and one inch to 8 inches in length; and shall be free of salt anddeleterious materials such as clods, coarse objects and rocks. At least 75 percent, by volume, of shredded bark shall conform to the sizes specified.

H. A Certificate of Compliance for mulch shall be furnished to the Engineer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

2.07 SEED

A. Seed required to be labeled under the California Food and Agricultural Code, shall be labeled by the vendors supplying the seed. Seed shall have been tested for purity and germination not more than 12 months prior to the application of the seed. The test results from seed testing shall be delivered to the Engineer prior to applying the seed. Seed labels furnished by the seed vendors supplying the seed shall indicate the purity, germination and pure live seed as determined by testing.

B. Seed with a germination rate lower than the minimum rate specified may be used when approved by the Engineer in writing.

C. Before seeding, the Contractor shall furnish written evidence (seed label or letter) to the Engineer that seed, not required to be labeled under the California Food and Agricultural Code, has been tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts, or a seed technologist certified by the Society of Commercial Seed Technologists.

D. The percentage of seed germination shall include the germination percentage of any hard and dormant seed.

F. Seed specified without a germination requirement, at the time of sowing, shall be from the previous or current year's harvest, and shall be labeled to include the name, date (month and year) collected and the name and address of the seed supplier.

G. All shipments of seed not accompanied by a valid California Nursery Stock Certificate shall be reported to the County Agricultural Commissioner at the point of destination for inspection and shall be held until released by the Commissioner.

H. Seed treated with mercury compounds shall not be used.

I. Legume seed shall be pellet-inoculated with viable bacteria compatible for use with that species of seed. All inoculated seed shall be labeled to show the mass of seed, the date of inoculation and the mass and source of inoculant materials.

J. Legume seed shall be pellet-inoculated in conformance with the requirements in Bulletin 1842, "Range-Legume Inoculation and Nitrogen Fixation by Root-Nodule Bacteria," of the University of California, Division of Agriculture and Natural Resources. Inoculant shall be added at the rate of 2 kg {2 pounds} of inoculant per 100 kg {100 pounds} of legume seed.

K. Inoculated seed shall be sown within 90 days of inoculation.

2.08 STABILIZING EMULSION

A. Stabilizing emulsion shall be a concentrated liquid chemical that forms a plastic film upon drying and allows water and air to penetrate.

B. Stabilizing emulsion shall be nontoxic to plant or animal life and non-staining to concrete or painted surfaces. In the cured state, the stabilizing emulsion shall not be re-emulsifiable. The material shall be registered with and licensed by the State of California, Department of Food and Agriculture, as an "auxiliary soil chemical."

C. Stabilizing emulsion shall be miscible with water at the time of mixing and application.

D. A Certificate of Compliance for stabilizing emulsion shall be furnished to the Engineer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." of Caltrans Standard Specifications.

2.08 PLANTS

A. Plants shall be the variety and size shown on the plans or in the special provisions and shall conform to the provisions of these specifications.

B. No plant shall be transported to the planting area that is not thoroughly wet throughout the ball of earth surrounding the roots. Any plant that, in the opinion of the Engineer, has a damaged root ball or is dry or in a wilted condition when delivered to the planting area will not be accepted, and shall be replaced by the Contractor at the Contractor's expense.

C. Each plant shall be handled and packed in the approved manner for that species or variety, and all necessary precautions shall be taken to ensure that the plants will arrive at the site of the work in proper condition for successful growth. Trucks used for transporting plants shall be equipped with covers to protect plants from windburn.

D. All plants furnished by the Contractor shall be true to type or name as shown on the plans and shall be tagged identifying the plants by species or variety; however, determination of plant species or variety will be made by the Engineer and the Engineer's decision shall be final. Plants shall be individually tagged or tagged in groups by species or variety. Carpobrotus cuttings need not be tagged.

E. All plants shall comply with Federal and State laws requiring inspection for plant diseases and infestations. Inspection certificates required by law shall accompany each shipment of plants, and certificates shall be delivered to the Engineer.

F. The Contractor shall obtain clearance from the County Agricultural Commissioner, as required by law, before planting plants delivered from a source outside the County in which the plants are to be planted. Evidence that clearance has been obtained shall be filed with the Engineer.

G. Plants furnished by the Contractor shall be healthy, shapely and well-rooted, and roots shall show no evidence of having been restricted or deformed at any time. Plants shall be well-grown, free from insect pests and disease, and shall be grown in nurseries which have been inspected by the State Department of Food and Agriculture and have complied with the regulations thereof.

H. Root condition of plants furnished by the Contractor in containers will be determined by removal of earth from the roots of not less than 2 plants nor more than 2 percent of the total number of plants of each species or variety, except when container-grown plants are from several sources, the roots of not less than (2) two plants of each species or variety from each source will be inspected by the Engineer. In case the sample plants inspected are found to be defective, including but not limited to, root bound or underdeveloped root ball, the State reserves the right to reject the entire lot or lots of plants represented by the defective samples. Plants rendered unsuitable for planting because of this inspection will be considered as samples and will not be paid for.

I. The Contractor shall notify the Engineer when plants are to be shipped to the project site. The notification shall be given not less than 10 days prior to the actual shipment date.

J. Carpobrotus cuttings shall be 250 mm {10 inches} or more in length and shall not be rooted. Delosperma cuttings shall be 150 mm {6 inches} or more in length and shall not be rooted. Cuttings shall be tip cuttings from healthy, vigorous and strong-growing plants, and shall be insect and disease free. Mature or brown-colored stem growths or cuttings which have been trimmed will not be accepted. Cuttings shall be planted not more than 2 days after cutting and shall not be allowed to dry or wither.

K. Carpobrotus cuttings shall not be taken from any plants that indicate the presence of ice plant scale (Pulvinaria species).

L. The Contractor shall notify the Engineer of the location where cuttings are to be taken at least 10 days prior to taking the cuttings and shall be responsible for all permit and inspection fees involved in obtaining cuttings.

M. Carpobrotus and Delosperma cuttings, to the extent available, may be taken from existing plantings within the State highway right of way under permit if the Contractor elects. The State makes no guarantee that there will be sufficient cuttings available from existing plantings on State highway right of way to complete the work. Information concerning areas from which the Contractor will be permitted to remove cuttings may be obtained at the office of the Permit Engineer of the district in which the work is situated.

2.09 Straw Wattles

A. Straw Wattles shall be manufactured from rice straw and be wrapped in tubular plastic netting. The netting shall have a strand thickness of 0.03 inch, and a knot thickness of 0.055 and a weight of 0.35 ounce per foot (each +/- 10%) and shall be made from 85% high density polyethylene, 14% ethyl vinyl acetate and 1% color for UV inhibition. Straw Wattles shall be nine inches in diameter (+/- one inch), twenty-five feet long (+/- 0.5 feet) and weigh approximately 35 pounds (+/- 10%). Straw Wattles shall be installed as shown on the plans. They shall be placed on contour and staked with 18 or 24 inch wood stakes at four foot on center. The ends of adjacent Straw Wattles shall be abutted to each other snugly.

2.11 PLANTING SOIL

A. Use approved imported topsoil, cleared, finish graded cultivated and amended for planting. Remove rocks, concrete or other foreign matter that would interfere with planting or maintenance operations.

2.12 TURF PROTECTION

A. Place 4 foot lath spaced 10 feet apart around all seeded areas with twine nursery jute 4 ply 240 pound test, securely looped around each stake and running continuously stake to stake.

2.13 TREE STAKES

A. Copper napthenate impregnated, lodgepole pine.

2.14 TREE TIES

A. No. 11 galvanized wire with 2-ply reinforced rubber or plastic hose.

2.15 SOIL CONDITIONER

A. Finely ground wood and bark, wood shavings, or composted rice hulls, 1 percent nitrogen stabilized by weight.

PART 3 – EXECUTION

3.01 PREPARATION

A. Preparation shall include all the work required to make ready the areas for application of topsoil and erosion control materials. Loose rocks larger than 21/2 inches in maximum dimension and debris shall be removed and disposed of outside the property.

B. Topsoil shall be spread uniformly at the rate specified in the special provisions or shown on the plans. The finished surface after spreading topsoil shall be approximately one inch below the top of adjacent curbs or pavement.

C. Topsoil shall not be placed until all equipment, except equipment required for spreading topsoil, is through working in an area.

3.02 APPLYING AND INCORPORATING STRAW

A. Straw shall be uniformly spread at the rate specified in the special provisions.

B. When weather conditions are suitable, straw may be pneumatically applied by means of equipment which will not render the straw unsuitable for incorporation into the soil.

C. Straw shall be incorporated into the soil with a roller equipped with straight studs, made of approximately 7/8 inch steel plate, placed approximately 8 inches apart and staggered. The studs shall not be less than 6 inches long nor more than 6 inches wide and shall be rounded to prevent withdrawing the straw from the soil. The roller shall be of such mass as to incorporate the straw sufficiently into the soil so that the straw will not support combustion, and will leave a uniform surface.

3.03 SEEDING AND FERTILIZING

A. General

1. Seed and commercial fertilizer shall be uniformly spread over the area at the rates specified in the plans.

2. Unless otherwise specified in the special provisions, seed shall be either applied mechanically in a dry condition or with hydro-seeding equipment, at the Contractor's option. If the Contractor elects to hydro-seed, a minimum of 525 pounds of fiber per acre shall be mixed and applied with the seed, and fertilizer (if required) may be mixed with the seed and fiber and applied in the hydro-seeding operation. The fiber shall be furnished and applied at the Contractor's expense and shall be in addition to incorporating straw when an application or applications of straw are specified.

3. The application rate for pellet-inoculated seed shall be determined using the seed mass exclusive of inoculant’s materials.

B. Hydro-Seeding

1. Hydro-seeding shall consist of mixing and applying seed, commercial fertilizer, stabilizing emulsion and other materials, or any combination thereof, with fiber and water.

2. The materials and the quantities thereof to be mixed with water will be specified in the special provisions. The quantity of water shall be as needed for application, except that when stabilizing emulsion is specified, the ratio of total water to total stabilizing emulsion in the mixture shall be as recommended by the manufacturer of the emulsion.

3. Mixing of materials for application with hydro-seeding equipment shall be performed in a tank with a built-in continuous agitation system of sufficient operating capacity to produce a homogeneous mixture and a discharge system which will apply the mixture at a continuous and uniform rate. The tank shall have a minimum capacity of 3700 L {1,000 gallons}. The Engineer may authorize use of equipment of smaller capacity if it is demonstrated that the equipment is capable of performing all operations satisfactorily.

4. A dispersing agent may be added to the mixture provided the Contractor furnishes evidence that the additive is not harmful. Any material considered harmful, as determined by the Engineer, shall not be used.

5. Any mixture containing stabilizing emulsion shall not be applied during rainy weather or when soil temperatures are below 5°C. Pedestrians or equipment shall not be permitted to enter areas where mixtures containing stabilizing emulsion have been applied.

3.04 PESTICIDES

A. Contactor is to follow site IPM practices regarding use and application of pesticides.

B. Attention is directed to Section 7-1.01H, "Use of Pesticides."

C. The Contractor shall obtain recommendations for the use of all pesticides from a licensed Pest Control Adviser in conformance with the requirements of the California Food and Agricultural Code. At least 15 days prior to using any pesticides, a copy of the recommendations shall be submitted to the Engineer for approval. The recommendations shall include, but not be limited to, the pesticides to be used, rates of application, methods of application and areas to which pesticides are to be applied.

D. Before using any pesticides, the Contractor shall obtain the Engineer's and Building Manager's written approval of the Pest Control Adviser's recommendations.

E. When used, pesticides shall be used in conformance with the approved Pest Control Adviser's recommendations.

F. The Contractor shall notify the Engineer and Building Manager at least 24 hours prior to each application of pesticide and shall indicate the hours of application. Pesticide application shall be made on Saturdays, Sundays or legal holidays, unless otherwise approved by the State in writing.

G. Pesticides shall be mixed in conformance with the instructions provided on the applicable registered label. Prior to mixing any pesticide, a copy of the registered label for the pesticide to be mixed shall be given to the State or, when the copy is unavailable, the Engineer shall be permitted to read the label on the container.

H. Pesticides for weed control shall be applied with a photosensitive dye which will produce a contrasting color when sprayed upon the ground. The color shall disappear between two and three days after being applied. The dye shall not stain any surfaces nor injure plant or animal life, when applied at the manufacturer's recommended application rate.

I. Pesticides shall not be applied when weather conditions, including wind conditions, are unsuitable for application work.

J. Any new or existing plants and soil which, in the opinion of the Engineer, have been damaged by the application of pesticides shall be replaced by the Contractor at the Contractor's expense.

K. At the end of each work week, a written report of that week's applications of all pesticides shall be submitted to the State on forms furnished by the Department.

3.05 PREPARING PLANTING AREAS

A. Preparing planting areas shall consist of preparing holes, preparing trenches, cultivating, germinating weeds, constructing basins and doing any other work necessary to prepare areas for planting, except roadside clearing work, as specified in these specifications and the special provisions and as shown on the plans. Constructing basins shall be considered as part of the work involved in preparing holes and trenches.

B. Unless otherwise specified, a planting or planted area shall be any area in which the Contractor is required to do planting work.

C. The Engineer will designate the ground location of all plants by directing the placing of the plants or by directing the placing of stakes or other suitable markers. The Contractor shall furnish all labor, materials and transportation required to adequately indicate the various plant locations.

D. The work involved in preparing planting areas shall be so conducted that the existing flow line in drainage ditches will be maintained. Material displaced by the Contractor's operations which interferes with drainage shall be removed and disposed of as directed by the Engineer.

E. Unless larger planting holes are specified in the special provisions or shown on the plans, plants shall be planted in holes large enough to receive the root ball, backfill, amendments and fertilizer. Where rock or other hard material prohibits holes from being excavated to the depth specified, new holes shall be excavated and the abandoned holes shall be filled with the excavated material.

F. Planting holes may be excavated by hand digging or by drilling. Water shall not be used for the excavation of planting holes.

G. At the locations shown on the plans, longitudinal basins shall be formed by constructing a continuous dike on each side of the planting line. Cross checks shall be formed to pond irrigation water around each plant.

H. The planting areas to be cultivated will be designated in the special provisions or shown on the plans. The outer limits of the areas to be cultivated shall extend 12 inches beyond the outer rows of plants requiring cultivation, unless otherwise specified or shown on the plans.

I. Cultivation shall be performed until the soil is in a loose condition to a minimum depth of 6 inches. Soil clods shall not be larger than 2 inches in any dimension after cultivation.

J. The use of rubber-tired equipment will be permitted for cultivating operations, provided the equipment used completely eradicates any compaction caused by the tires. Rubber-tired equipment of any kind will not be allowed on cultivated areas after cultivation.

K. Planting areas that have been cultivated and become compacted for any reason shall be re-cultivated by the Contractor at the Contractor's expense.

L. Rocks and other debris encountered during soil preparation in planting areas shall be brought to the surface of the ground at the Contractor's expense. Removing and disposing of the rocks and debris will be paid for as extra work. The size of rocks and the quantity of rocks and debris to be disposed of will be determined by the Engineer.

M. Pavement, sidewalk and similar paved areas encountered on or beneath the surface of the ground and not shown on the plans in areas to be prepared for planting, and if ordered by the Engineer, shall be removed and disposed of as directed by the Engineer. Excavating through these paved areas, furnishing and placing topsoil to fill these holes, and removing and disposing of all this pavement will be paid for as extra work.

N. Existing pavement shown on the plans where planting holes or trenches are to be excavated, or where cultivation is to be done, shall be removed and, unless otherwise permitted by State, disposed of outside the property.

3.06 HEADER BOARDS

A. Header boards shall conform to the provisions in Section 20-2.12, "Lumber," of Caltrans Standard Specifications and be constructed as shown on the plans.

B. Header board stakes shall be of the size and shape shown on the plans. Each stake shall be driven flush with the top edge of the header board and the stake top shall be beveled away from the header board on a 45-degree angle. Stakes shall be attached to header boards with a minimum of two 12-penny hot-dip galvanized common nails per stake.

C. Where asphalt concrete or portland cement concrete surfacing must be removed to permit the installation of header boards, and no joint exists between the surfacing to be removed and surfacing to remain in place, the surfacing shall be cut in a neat line to a minimum depth of 2 inches with a power driven saw before the surfacing is removed, must address dust caused by concrete sawing.

3.07 PLANTING

A. Planting work shall consist of planting plants, applying fertilizer, iron sulfate and mulch and staking plants.

B. No planting shall be done in any area until the area concerned has been prepared in conformance with these specifications and the special provisions and presents a neat and uniform appearance satisfactory to the Engineer. When an irrigation system is required, the irrigation system shall be installed and checked for coverage to the satisfaction of the Engineer prior to planting plants.

C. Nursery stakes in plant containers stored at the project site shall be removed before transporting the plants to the planting areas, unless otherwise directed by the Engineer.

D. Plant locations for trees and shrubs shall be adjusted so that no plant is closer than 8 feet to an impact, rotary, gear driven or pop-up type sprinkler.

E. Where shrubs are shown on the plans to be planted in groups, the outer rows shall be parallel to the nearest roadway or right of way fence. Shrubs in adjacent rows shall be staggered. Adjustment in the number or alignment of plants shall be made between the outer rows.

F. Where vines are to be planted against walls or fences, the vines shall be planted as close as possible to the wall or fence as shown on the plans.

G. No more plants shall be distributed along the roadside on any day than can be planted and watered on that day.

H. Plants shall be removed from their containers in such a manner that the ball of earth surrounding the roots is not broken. Plants shall be planted and watered as hereinafter specified immediately after removal from their containers. Plant containers shall not be cut prior to delivery of the plants to the planting area.

I. Roots of plants not in containers shall be kept moist and covered until the plants are planted.

J. Root protectors shall be installed at the time the plant holes are prepared in conformance with the details shown on the plans and these specifications. Root protectors shall be placed in the plant holes with approximately 3 inches of the wire cylinder extending above finished grade.

K. Before planting in holes or trenches, water shall be applied to the backfill with a pipe or tube inserted to the bottom of the hole or trench until the backfill material is saturated for the full depth.

L. Plants shall be set in the backfill material in flat bottomed holes, to such a depth that, after the backfill has settled, the soil shall be even with the top of the root ball as shown on the plans. If the backfill material settles below the top of the root ball after planting and watering, additional soil shall be added to bring the backfill even with the top of the root ball as shown on the plans.

M. Plants shall be planted in such a manner that the roots are not restricted or distorted. Encircling roots shall be removed.

N. Any plants which have settled deeper than as shown on the plans shall be raised back to the required level, or replaced, at the option of the Contractor.

O. Planting done in soil that is too wet or too dry or not properly conditioned, as provided in these specifications, or in a condition not generally accepted as satisfactory for planting from an agricultural standpoint will not be accepted. No payment will be made for this planting and any further planting work will be suspended until the Contractor has complied in every way with the specifications.

P. Ground cover plants in areas with an irrigation system shall be planted in blocks which conform to the design of the irrigation system. Each ground cover planting area covered by one control valve shall be completely planted and watered before planting other ground cover planting areas with ground cover plants.

Q. Ground cover plants shall be planted in moist soil and in neat, straight rows parallel to the nearest roadway. Plants in adjacent rows shall be staggered. Ground cover plants shall not be planted closer than 5 feet to trees or shrubs, nor closer than 61/2 feet to curbs, paved areas, walls and fences, unless otherwise shown on the plans or specified in the special provisions.

R. Carpobrotus cuttings shall be planted to such depth that not less than 2 nodes are covered with soil. The basal end of Delosperma cuttings shall be not less than 2 inches below the surface of the soil and the basal end of Carpobrotus cuttings shall be not less than 4 inches below the surface of the soil.

S. A root stimulant solution shall be applied to Delosperma cuttings prior to planting. The solution shall be applied by spraying or dipping the ends to be rooted in conformance with the printed instructions of the root stimulant manufacturer. A copy of the instructions shall be furnished to the Engineer prior to applying the stimulant.

T. No Carpobrotus or Delosperma cuttings shall be planted in soil that does not contain sufficient moisture at an average depth of 2 inches below the surface.

U. Trees, shrubs and vines, to be planted in ground cover areas, shall be planted before ground cover plants or cuttings are planted.

V. Fertilizer and iron sulfate shall be applied or placed at the time of planting and at the rates and amounts shown on the plans.

W. When iron sulfate is required by the special provisions or plans, the iron sulfate shall be evenly distributed within the plant basin and mixed into the plant soil a minimum depth of 2 inches.

X. Fertilizer (pellet and granular) required during planting by the special provisions or plans, shall be mixed into the plant hole soil a minimum depth of 2 inches near the root ball.

Y. Commercial fertilizer (tablet) required by the special provisions or plans, shall be placed approximately half the depth of the root ball.

Z. Commercial fertilizer required during planting by the special provisions or plans, shall be applied to ground cover plants planted from cuttings or flats immediately after planting, and watered into the soil.

AA. Vines planted next to fences shall be tied to the fences with tree tie material at the time of planting. Vines planted next to walls shall be staked and tied thereto as shown on the plans, at the time of planting.

BB. Foliage protectors shall be installed over the plants within 2 days after the plants have been planted in conformance with the details shown on the plans and these specifications.

CC. Support stakes for foliage protectors shall be installed vertically a minimum of 12 inches deep on opposite sides of the plant in a direction transverse to the prevailing winds. Support stakes shall be either woven through the wire cylinder mesh or fastened to the wire cylinder at 6 inches maximum centers. If the support stakes are woven through the wire cylinder mesh, the support stakes shall be woven in such a manner that holds the wire cylinder against the support stakes at 6-inch maximum centers. The cylinder shall be snug on the support stakes, yet loose enough to be raised for application of pesticides or to perform weeding within the plant basin.

DD. Foliage protectors shall be installed vertically and centered over the plant. When foliage protectors are not installed in plant basins, the bottom of the cylinder shall be cut to match the slope of the ground. Cuts shall be free from sharp points. Sharp points of wire shall be bent-over or blunted.

EE. Plants to be staked shall be staked at the time of planting as shown on the plans or specified in the special provisions. Two plant stakes shall be installed on opposite sides of the plant in a transverse direction to the prevailing wind against but not through the root ball of the plant to a minimum depth of 18 inches below finished grade, unless otherwise directed by the Engineer.

FF. Plant stakes installed at trees and shrubs shall be of sufficient lengths to support each plant in an upright position. Plant stakes shall be either 2-inch nominal diameter round stakes or 2-inch x 2-inch nominal size} square stakes, at the Contractor's option. The cross-sectional dimensions of the plant stakes may be reduced if the strength and durability of the smaller dimensioned stake is not less than a corresponding 2-inch redwood stake as determined by the Engineer. In no case shall stakes have a cross-section dimension of less than 11/4 inches, unless otherwise shown on the plans.

GG. After installation of plant stakes, the height of each stake shall be a maximum of 2 inches above the tree tie.

HH. Each plant requiring stakes shall be tied with one tie to each stake. The ties shall be installed at the lowest position which will support the plant in an upright position. Ties should provide trunk flexibility but not allow the trunk to rub against the stakes. Ties shall be extruded vinyl-base tape, one inch wide and a minimum of 10 mils thick. Each tie shall form a figure eight by crossing the tie between the plant and stake, and the figure eight shall be formed twice. Each end of the tie then shall be wrapped one and one-half turns around the stake and securely tied. Other materials and methods approved by the Engineer may be used for ties.

II. Contractor shall be held responsible from the time plants are planted until the beginning of the plant establishment period, for damage caused by erosion and shall repair all damages at his/her expense.

3.08 WEED ABATEMENT

A. After completion of irrigation system, and installation of topsoil and surfactant, operate system for 2 weeks to allow germination of existing weed seeds. Contractor to follow site's IPM process for weed abatement until project has completed it's warranty period.

3.09 SHIPMENT OF MATERIALS

A. Deliver to the site in sealed bags, or in bulk. Furnish delivery certificate with each shipment stating source, quantity, type, analysis, and delivery date. Do not apply fertilizers or soil amendments until total quantity needed for job has been delivered to site, and analysis has been accepted.

3.10 SOIL AMENDMENT

A. After completion of finish grading, but before landscaping work is begun, have soil laboratory analysis performed on soil samples procured by the State as specified in Article 1.06. Obtain laboratory recommendation for soil amendments.

B. Type and quantity of soil amendments specified may be revised by change order should laboratory fertility analysis reveal substantial deficiencies.

3.11 STAKING

A. Accurately make all layout and staking. Locations of trees and shrubs are based on the location of sprinkler heads. Do not plant trees close to lawn sprinkler heads, but plant in overlap area of two or more heads.

3.12 FINISH GRADING

A. Make areas smooth and even. Remove all objects, solid clods, wiring, gravel, lumps, rocks, concrete chunks, mortar, debris, construction waste and weeds before grading.

B. Make finish earth grades as follows:

1. In turf, 1 inch below adjacent surfaces of walks, curbs, headers, paved areas and valve boxes.

2. Elsewhere 4 inches below paving adjacent to planting.

3. Final grading must be accomplished so that surface drainage is away from structures.

3.13 TURF AREA SOIL PREPARATION

A. Apply 2 inch thickness of soil conditioner and incorporate into the top 6 inches of soil.

3.14 PLANTING HOLE SOIL PREPARATION

A. Dig holes and mark locations before seeding. Install container plants after seeding, but before irrigating. Dig planting holes as detailed and backfill existing loosened soil without soil conditioner.

3.15 CLEANUP

A. Dispose of excess soil on the site as directed.

B. Remove cans, litter and construction refuse from the project daily. Keep areas clean and neat.

PART 4 – MAINTENANCE

4.01 TURF AREAS

A. Maintain all planted turf areas in stable condition throughout establishment period. Correct minor erosion promptly before serious damage can occur. Notify State Construction Supervisor of irrigation problems that require more than sprinkler head adjustment. Replace materials lost due to erosion from any cause.

B. Reseed turf areas that fail to show signs of germinating seed. Seeded areas will not be accepted until all areas are in healthy growing condition.

C. Spot spray - non-selective systemic herbicide to regrowth of annual and perennial weeds before seed heads form. Remove dead weeds where directed to promote plant growth and neat appearance.

D. Replace dead or dying plants, stakes, basins and other damage to installation as directed at inspections.

4.02 SOIL AMENDMENTS

A. In some jurisdictions across the country, soil amendments may be inspected as part of the sediment control plan for a site, usually upon site completion. Routine inspection of amended soils should evaluate factors that may affect the soil's infiltration capacity, aeration and organic content. Typical post construction concerns include areas subject to compaction, hydric or waterlogged soils, poor cover conditions, increased development, and a decrease in organic content. In addition, a routine soil infiltration rate analysis of amended soils in potential problem areas is recommended.

4.03 BIORETENTION

A. Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation. This maintenance can be incorporated into regular maintenance of the site landscaping. The use of native plant species in the bioretention cell will reduce fertilizer, pesticide, water, and overall maintenance requirements.

4.04 FILTER STRIPS

A. Filter strips require standard vegetation management, such as mowing, irrigation, and weeding. Typical maintenance activities include inspection of filter strips at least twice annually for erosion or damage to vegetation and additional inspection after periods of heavy runoff. Recent research on biofiltration swales indicates that grass height and mowing frequency have little impact on pollutant removal rates. Therefore, mowing may only be necessary once or twice a year for safety and aesthetics or to suppress weeds and woody vegetation.

4.05 INFILTRATION TRENCHES

A. The principal maintenance objective is to prevent clogging, which may lead to trench failure. Infiltration trenches should be inspected after large storm events and any accumulated debris or material should be removed. A thorough annual inspection should include monitoring of the observation well to confirm that the trench is draining properly. Trenches with filter fabric should be inspected for sediment deposits by removing a small section of the top layer and examining the material in the trench itself. When vegetated buffer strips are used, they should be mowed regularly and inspected for erosion or other damage after each major storm event.

4.06 TREE BOX FILTER

A. Tree box filters require little maintenance. Maintenance includes annual routine inspection and the regular removal of trash and debris. The first two years of maintenance are typically included with the purchase of single and multiple-unit tree box filters. These would include removal of trash, debris and sediment, replenishment of the mulch, and care or replacement of plants. During extreme droughts, the plants may need to be watered in the same manner as any other landscape material.

4.07 PERMEABLE PAVERS

A. After installation of a permeable paver system, maintenance is minimal but absolutely necessary to ensure the long lifetime of the system. Grass pavers will require the normal watering and mowing maintenance of any turf system. Porous concrete and interlocking concrete paving blocks require that the surface be kept clean of organic materials (leaves, for example). Periodic vacuuming and low-pressure washing should be used to clear out voids and extend the paver’s functional life. Conventional street sweepers should be used with vacuums, brushes and water ideally four (4) times a year, but the actual required frequency will be determined by local conditions. With the interlocking system, additional aggregate fill material may be required after cleaning.

4.08 PERMEABLE PAVEMENT

A. Maintenance requirements are similar to those for permeable pavers. To maintain its permeability, the pavement must be vacuumed or cleaned twice a year. This removes sediments, organic matter, and atmospheric deposition that would otherwise clog the pavement over time.

END OF SECTION

Appendix C Grounds Employee Expectations and Responsibilities

For internal use only

Appendix D Example Construction Work Order and Forms

Appendix contents

The table below lists sections included in this appendix.

Example Work Order and Forms

SECTION 01575

CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Waste Management Objective for the Project:

1. The State has established that this Project shall minimize the generation of construction and demolition waste at the site. Factors that contribute to waste, such as over-packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination shall be minimized.

2. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused or recycled. Waste disposal in landfills shall be minimized.

B. Diversion From Landfill: Waste categories appropriate for diversion from landfill shall include, but not be limited to, the following:

1. Land clearing debris
2. Soil
3. Wood: Clean dimensional wood, palette wood
4. Sheet Wood: Plywood, OSB and particle board
5. Concrete
6. Bricks
7. Concrete Masonry Units (CMU)
8. Asphalt Concrete
9. Paper
   a. Bond
   b. Newsprint
   c. Cardboard and paper packaging materials
10. Cement Fiber Products: Shingles, panels, and siding
11. Metals
    a. Ferrous
    b. Non-ferrous
12. Paint
13. Rigid Foam
14. Glass
15. Plastics
16. Carpet and pad
17. Beverage containers
18. Insulation
19. Gypsum Board
20. Porcelain Plumbing Fixtures
21. Fluorescent Light Tubes (per Dept. of Toxic Substances Control regulations)

Continued On Next Page

Example Work Order and Forms, Continued

1.02 RELATED REQUIREMENTS

A. Appendix 01575A: Construction Waste Estimate.

B. Appendix 01575B: Waste Management Report.

C. Section 01330: Submittal Procedures.

D. Section 01740: Cleaning.

E. Section 01770: Closeout Procedures.

1.03 REFERENCES

A. The California Integrated Waste Management Board (CIWMB); including the California Materials Exchange (CalMAX), Telephone 877-520-9703; www.ciwmb.ca.gov/calmax/.

B. Local Integrated Waste Management Programs and Re-Use Programs in the Project area.

C. The Department of Toxic Substances Control (DTSC)

1.04 CONSTRUCTION WASTE ESTIMATE

A. Within 10 calendar days after receipt of Notice of Award, or prior to any waste removal, whichever occurs sooner, the Contractor shall submit to the State a Construction Waste Estimate, using the Construction Waste Estimate form included as Appendix 01575A; containing the following information:

1. Estimate of total job site wastes to be generated, including material types and quantities.
2. Estimate of percentages of waste categories to landfill, to be reused, and to be recycled.

B. The State will provide an electronic copy of Appendix 01575A for Contractor's use.

C. Submit Construction Waste Estimate under provisions of Section 01330.

1.05 WASTE MANAGEMENT

A. Manager: Contractor shall designate on-site party (or parties) responsible for instructing workers and subcontractors, and overseeing and documenting results of Waste Management for the Project.

B. Distribution: Contractor shall distribute copies of the Construction Waste Estimate and Waste Management Report forms to the Job Site Foreman, each Subcontractor, and the State's Representative.

C. Meetings: Contractor shall conduct Waste Management meetings with subcontractors who generate construction waste. Contractor shall present current status of the Waste Management Report at regular job-site meetings.

D. Materials Handling Procedures: Provide means by which waste materials will be protected from contamination, and means to be employed in reuse or recycling of waste material consistent with requirements for acceptance by receiving facilities.

CONSTRUCTION WASTE MANAGEMENT
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Example Work Order and Forms, Continued

1. Separation Facilities: Contractor shall lay out and label a specific area to facilitate separation of materials for reuse and recycling. Recycling and waste bin areas shall be kept neat and clean and clearly marked in order to avoid contamination of materials.

2. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations, and in accordance with specifications for such work as may be included in this Project.

3. Instruction: Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at appropriate stages of the Project.

1.06 WASTE MANAGEMENT REPORT

A. Upon completion of Work, including final cleanup, provide a final Waste Management Report containing the information required on Appendix 01575B, Waste Management Report forms.

1. The total quantity of each waste material generated; and the date(s) removed from the job-site.

2. The percent of the total quantity generated of each material sent to landfill, the identity of the landfill (receiving facility), handling costs, transport costs, tipping fees paid at the landfill, and total landfill costs. Attach copies of manifests, weight tickets, receipts, and invoices.

3. For each material reused or recycled from the Project, include the percent of the total quantity generated, the identity of the receiving facility, the total costs of handling and transportation, and income. Attach manifests, weight tickets, receipts, and/or invoices.

4. Contractor shall edit and use forms included in Appendix 01575B, Waste Management Report, or use them as a basis for Contractor's forms.

5. The State will provide electronic copies of Appendix 01575B for Contractors' use.

B. Submit Waste Management Report under provisions of Section 01770.

END OF SECTION

CONSTRUCTION WASTE MANAGEMENT
PMBMSTR: 9/15/00 01575-3 [WORK ORDER]

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Example Work Order and Forms, Continued

WASTE MANAGEMENT REPORT
COST / INCOME

Waste Material (Edit to Suit)	Unit	Receiving Facility	Landfill Cost			Reused		Recycled	
			Handling	Transport	Fee	Cost	Income	Cost	Income
Land Clearing Debris	CY								
Soil	CY								
Wood	CY								
Sheet Wood	CY								
Concrete	CY								
Bricks	CY								
Concrete Masonry Units	CY								
Asphalt Concrete	CY								
Paper	CY								
Cement Fiber Products	CY								
Metal (ferrous)	TON								
Metals (non-ferrous)	LBS								
Paint	GAL								
Rigid Foam	CF								
Glass	CF								
Plastics	CF								
Carpet and Pad	SY								
Beverage Containers	LBS								
Insulation	CF								
Gypsum Board	CF								
Porcelain Plumbing Fixtures	EA								
Fluorescent Light Tubes	EA								
		TOTALS:							

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WASTE MANAGEMENT REPORT
01575B-2

WORK ORDER [ ]

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Example Work Order and Forms, Continued

CONSTRUCTION WASTE ESTIMATE

Date: _____

Waste Material (Edit to Suit)	Unit	Estimated Quantity Generated	Percent to Landfill	Percent Reused	Percent Recycled
Land Clearing Debris	CY				
Soil	CY				
Wood	CY				
Sheet Wood	CY				
Concrete	CY				
Bricks	CY				
Concrete Masonry Units	CY				
Asphalt Concrete	CY				
Paper	CY				
Cement Fiber Products	CY				
Metal (ferrous)	TON				
Metals (non-ferrous)	LBS				
Paint	GAL				
Rigid Foam	CF				
Glass	CF				
Plastics	CF				
Carpet and Pad	SY				
Beverage Containers	LBS				
Insulation	CF				
Gypsum Board	CF				
Porcelain Plumbing Fixtures	EA				
Fluorescent Light Tubes	EA				

PMBMSTR: 8/00

CONSTRUCTION WASTE ESTIMATE
01575A-1

WORK ORDER NO.

Appendix E Construction Indoor Air Quality Specification

SECTION 15890 – CONSTRUCTION INDOOR AIR QUALITY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

B. This project is a registered US Green Building Council (USGBC) "LEED Existing Buildings (EB)" project and is required to obtain LEED-EB [Certified] [Silver] [Gold] [Platinum] certification.

C. This Section includes LEED-EB requirements for Indoor Air Quality (IAQ), Environmental Quality (EQ) Credit 3.

1.3 DEFINITIONS

D. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers.

E. LEED: Leadership in Energy and Environmental Design.

F. MERV: Minimum Efficiency Reporting Value.

G. SMACNA: Sheet Metal and Air Conditioning Contractors' National Association.

1.4 SCHEDULES AND MEETINGS

A. Project and Preinstallation Meetings: The Contractor or his duly appointed representative shall attend project meetings at regular intervals as set by the State and shall attend preinstallation meetings as required by pertinent Specification Sections. Attendance shall be limited to the Contractor and his immediate subordinates, subcontractors where so specified by the State. The States representative will keep minutes of meetings; with copies sent to all who attend. Meetings shall be held at the job site in a location as directed by the State.

1.5 REGUALTORY REQUIREMENTS

A. The States' approval of the Contractors IAQ Procedures Compliance Plan shall not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures required by Federal, state, county or local agencies.

1.6 ENVIRONMENTAL DEFINITIONS

A. Adequate Ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of dust, fumes vapors, or gases.

B. Interior Final Finishes: Materials and products that will be exposed at interior, occupied spaces including flooring, wall covering, finish carpentry, and ceilings.

C. Wet Materials: Materials and products installed in wet form, including paints, sealants, adhesives, special coatings and spray applied materials such as structural fireproofing.

1.7 SUBMITTALS

A. Project Progress Schedule: The Contractor shall submit to the State, within 15 days of the start date in the Notice To Proceed, a Progress Schedule indicating how the work will be executed. The Progress Schedule shall include timeframes for application of wet materials onto dry materials, dry materials onto wet materials, and expected curing times for applied wet materials.

B. LEED-EB Indoor Environmental Quality (IEQ) Credit 3: The documentation and performance requirements identified in Section 3.1 LEED-EB CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT shall be submitted by the Contractor for State review and approval.

1. Construction IAQ Management Plan – refer to the California Best Practice Manual, *Better Buildings for a Better Tomorrow,* for additional information.

   a. Contact: Department of General Services/Real Estate Services Division/ Building and Property Management Branch/Sustainability Program

2. Product data for filtration media used.

3. Construction Documentation: Six photographs at three different occasions during construction along with a brief description of the SMACNA approach employed, documenting implementation of the IAQ management measures, such as protection of ducts and on-site or installed absorptive materials.

4. Signed statement describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after the flush-out.

5. Report from testing and inspecting agency indicating results of IAQ testing and documentation showing conformance with IAQ testing procedures and requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 LEED-EB CONSTRUCTION INDOOR AIR QUALITY MANAGMENT

H. Develop and implement an IAQ Management Plan for the construction and occupancy phases of the building as follows:

1. During construction, meet or exceed the recommended Design Approaches of the SMACNA IAQ Guideline for Occupied Buildings Under Construction, 1995 Chapter 3, for the items listed below.

a. HVAC Protection.

b. Source Control.

c. Pathway Interruption.

d. Housekeeping.

e. Scheduling.

2. Protect stored on-site or installed absorptive materials from moisture damage.

3. If air handlers must be used during construction, filtration media with a MERV of 8 must be used at each return grill, as determined by ASHREA 52.5-1999.

4. Replace all filtration media immediately prior to occupancy.

5. Remove contaminates that may be remaining at the end of the construction period.

   a. Conduct a minimum two-week flush-out with new filtration media with 100% outside air after construction ends and prior to occupancy of the affected space. After the flush-out, replace the filtration media with new media, except for filters soley processing outside air.

   OR

   b. After construction ends conduct a baseline indoor air quality testing procedure for the affected space in the building that demonstrates that the concentration levels for the chemical air contaminates are below specified levels. For each sampling point where the maximum concentration limits are exceeded conduct a partial building flush-out, for a minimum of two weeks, then retest the specific parameter(s) that were exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met.

Chemical Contaminate	**Maximum Concentration**
Formaldehyde	0.05 parts per million
Particulates	20 micrograms per cubic meter above outside air conditions
Total Volatile Organic Compounds (TVOC)	500 micrograms per cubic meter
4-Phenylcyclohexene (4-PCH)	3 micrograms per cubic meter
Carbon Monoxide (CO)	9 parts per million

   c. The air sample testing shall be conducted as follows:

      1) Air samples collected for every 25,000 square feet, or for each contiguous floor area, whichever is greater.

      2) Measurements conducted with the building ventilation system starting at normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout duration of the air testing.

      3) Test with time weight values of four hours with data logging.

      4) When re-testing non-complying building areas, take samples from the same locations as in first test.

5) Copies of the IAQ testing results shall describe the contaminate sampling and analytical methods, the locations and duration of continuous samples, the field sampling log sheets and laboratory analytical data, and the methods and results utilized to determine that the ventilation system was started at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode through the duration of the air testing.

END OF SECTION